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Whether to Buy Power or Make It

If Steam Is Needed for Manufacturing Processes the
Private Power Plant Justifies Itself—How
One Company Figured It Out

BY JOSEPH BRESLOVE*

WHAT may be accomplished by substituting new and modern equipment for uneconomical apparatus which has become obsolete and expensive to operate is fairly exemplified in the recently completed power plant of the Pittsburgh Spring & Steel Co., Pittsburgh. The power plant contains no radical elements of design. But it is worthy of note as demonstrating that timely consideration of the small plant may be productive of economies as great proportionately as in the larger station, where the latest engineering refinements are being given place.

Making elliptic and spiral springs for railroad service, as well as special springs and accessories, operating hydraulic presses, punch presses, steam hammers, coiling machines, machine and blacksmith shops, oil-fired furnaces and the various auxiliaries which make up the modern plant, the company has manufactured its own power since its formation.

While the power plant represented the approved practice of its day, it had, however, become obsolete and uneconomical and had outgrown its usefulness. The original power installation included four boiler units, each composed of two 200-hp. return tubular boilers with one short stack, three units being stoker fired and one hand fired. An obsolete type of feed-water heater with boiler-feed pumps and a heterogeneous mass of piping completed the boiler room equipment. Coal and ash were handled manually, the coal being shoveled from the floor into the stoker hoppers or into the furnaces of the hand-fired boilers. Boiler feed regulation also was manual.

Two 150-kw. direct connected, 230-volt, direct current, non-condensing, slide valve engine generator units furnished current for the motor-driven rolls, punches, shears, cranes, etc. The principal steam-driven equipment outside the power house consisted of two large

belted engine-driven fans for supplying air to the heating furnaces, two steam-driven high-pressure hydraulic pumps, steam pumps for furnishing mill water and large steam forging hammers. Office and mill buildings are heated by exhaust steam.

To Buy or to Build Anew

The boiler plant had reached the stage where its replacement or removal was imperative. The mechanical equipment of the mill being motor driven, the question arose as to whether the private plant should be retained but rebuilt along modern and more economical lines, or abandoned in favor of electric power purchased from the local public utility. An extensive survey over several months of operation was made, fuel consumption checked, steam and electric current metered and actual operating costs obtained.

Total power consumption was not large enough to warrant elaborate and expensive equipment, the electrical output being only about 150 kw. Consequently, in giving consideration to the private plant, only the simplest form of power station, and therefore not necessarily the highest fuel economy, could be considered. Against this, purchased power appeared attractive.

Unfortunately, several adverse factors entered the problem. Considerable new equipment would be required to replace some which still had several years of useful life. The hydraulic pressure pumps and some of the steam-driven machinery could not be motorized without complete replacement. One large steam forging hammer presented a serious problem. The work done by the hammer is of a special character, developed to a high state of efficiency on this particular class of work, the output of one department revolving to a considerable extent around its successful operation.

Substitution of compressed air from a separate motor-driven compressor would involve considerable

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THE question of buying power or making it revolves around internal conditions in each plant. Rearrangement or abandonment of equipment may be carried out over a suitable period, to obtain necessary economy and certainty of operation. When steam is required for process work, or other special conditions prevail, the actual cost of the power itself becomes of secondary importance.

These are among the points discussed in this article, which tells how a plant attacked the problem and found its solution.

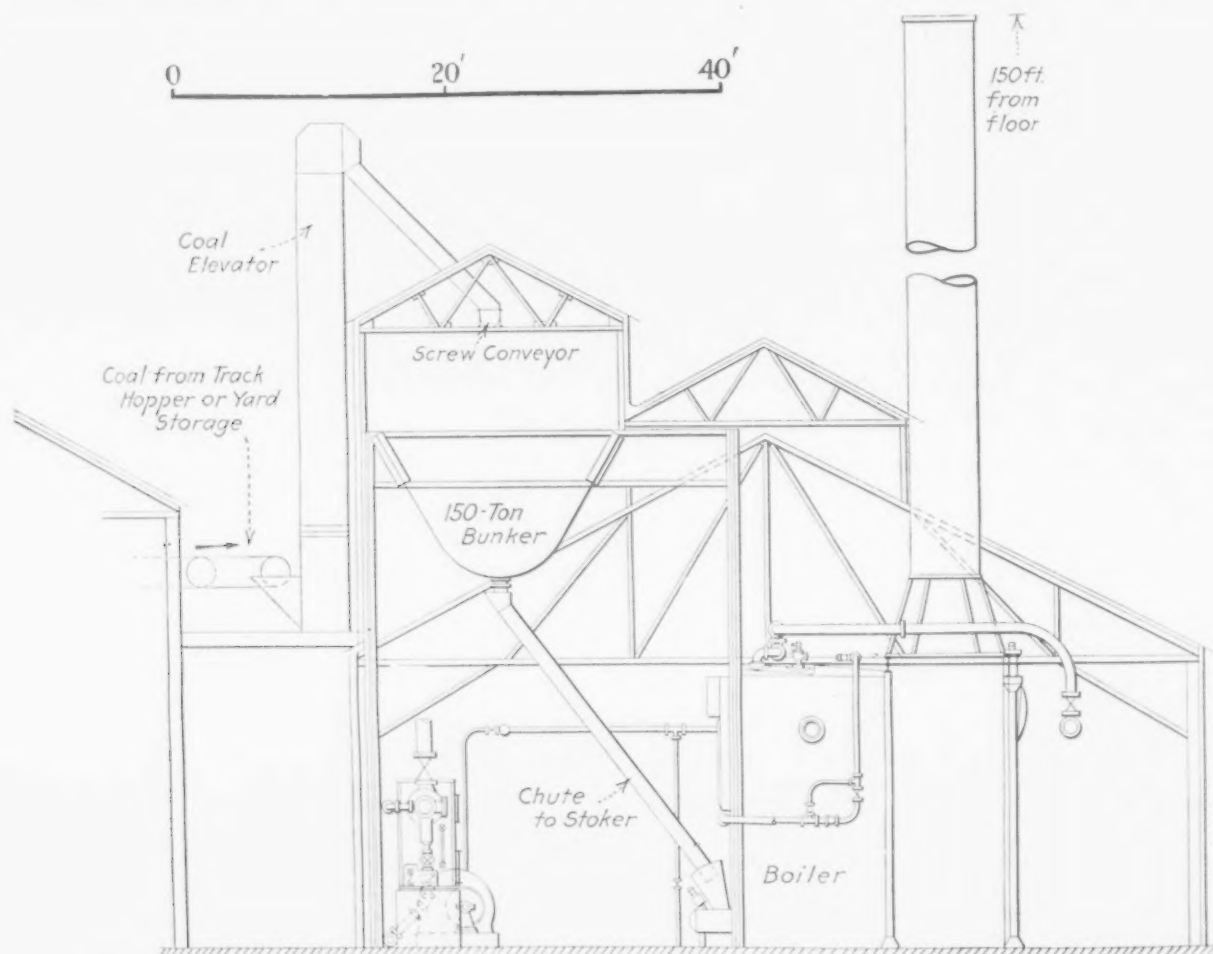
expense for new machinery, while its replacement by a motor-operated air hammer was not found entirely satisfactory. Actual tests on electrically driven machines failed to produce a desirable substitute. With the exception, however, of the steam hammers and heating, all machinery could be motorized and considerable thought was given to purchased power.

The capital expenditure for the private steam plant was somewhat in excess of that for electrification, while the net operating costs for both systems, allowance being made for interest on investment, depreciation and other fixed charges, were practically the same. Insofar as the actual cost of power entered into the problem, and if this were the only factor, there was little to gain in maintaining the private plant. The continued operation of the large steam hammer was, however, a vital factor at this plant. A further handicap resulted from the fact that the public utility furnishes only alternating current, whereas the plant sys-

tem single retort stokers, provision being made for a future additional boiler.

Room for the first boiler was made by tearing out two of the old boiler units and crowding the two remaining ones to their capacity. A portable boiler, borrowed for the occasion, was placed outside the building and assisted in maintaining steam. With the completion of the first new boiler, the remaining two units were removed and the second boiler installed. The auxiliaries followed without difficulty.

Coal is fed to the stoker hoppers from an overhead steel bunker. It is the conventional parabolic type with distribution through a longitudinal screw traveling the length of the bin. Additional coal storage is provided for in the yard adjoining the power house. Railroad cars dump into a track hopper from which the coal is elevated by a bucket elevator discharging through a chute, either into the yard storage or onto a belt conveyor which transfers it to a second bucket



Section Through the New Power House, Showing Manner of Feeding Coal to the Boiler Stokers

tem was direct current, involving the purchase of motor-generator sets and the constant conversion loss.

These conditions and the desirability of providing for complete electrification only, over a term of years, depending upon industrial conditions, finally forced the issue against purchased power. It was decided to continue the private steam plant, replace the boilers and auxiliaries, add a new electric generating unit and gradually electrify the various steam-driven machines in accordance with a definite program extending over a period of time and as permitted by the state of the industry.

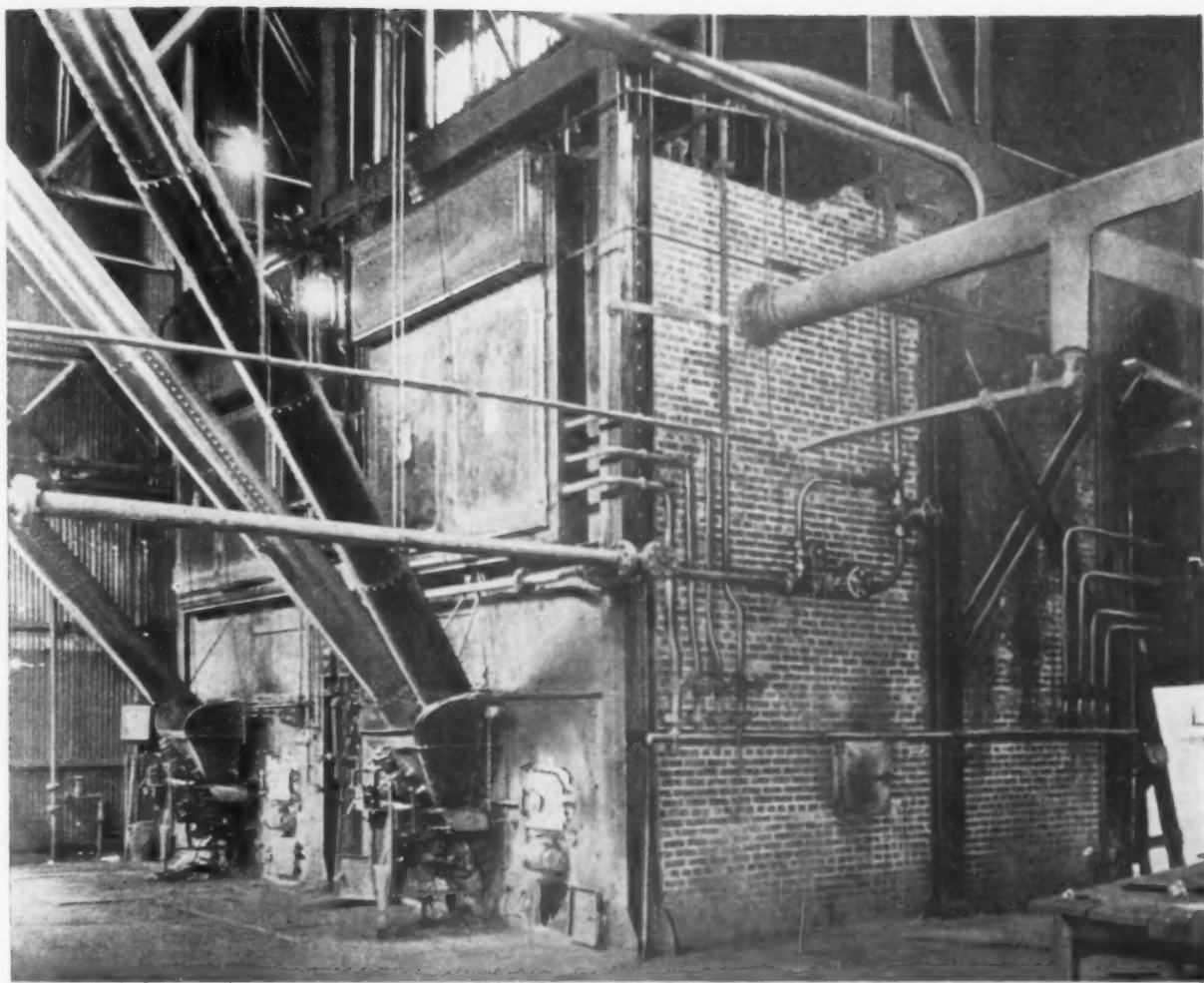
Arranging the New Plant

One condition imposed required that the plant be kept in operation during the transition period, that the existing building be used for the new equipment, and that certain steam units still having useful life be continued. The old boilers were replaced by two 5000 sq. ft. Heine horizontal water-tube boilers with soot blowers, fired by Combustion Engineering Corpo-

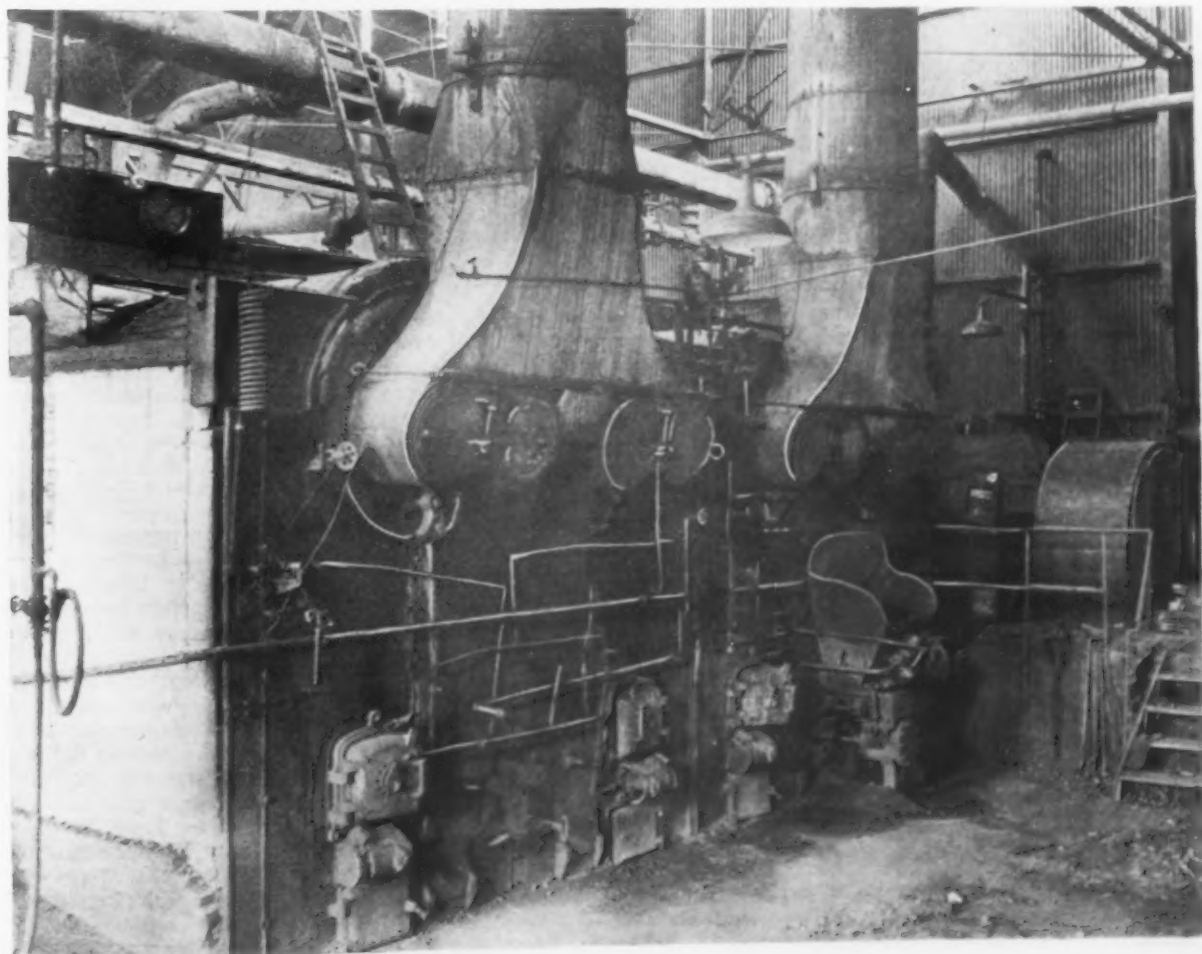
ration single bin to the necessary height to feed the coal bin in the boiler room. Coal handling machinery, bins, etc., were furnished by the Stearns Conveyor Co., Cleveland.

Combustion air is supplied by a Sturtevant forced draft fan direct connected to a Sturtevant steam turbine with a capacity of 22,500 cu. ft. per min. against 5¼-in. pressure at 1850 r.p.m. and 15,000 cu. ft. per min. against 3½-in. pressure at 1400 r.p.m. Speed control is obtained through a Ruggles-Klingeman pressure regulator. A duplicate motor driven fan is to be installed later. The old heater was replaced by a new open feed-water heater and an additional Worthington duplex boiler-feed pump was added. All this equipment is now located in the boiler room. The heater, exhaust relief valve, boiler-feed pumps and draft fan are shown in Fig. 4.

The striking contrast between the old plant and the new may be seen by two photographs. The former shows two of the old boiler units, each composed of two separate boilers with one furnace and a short stack.



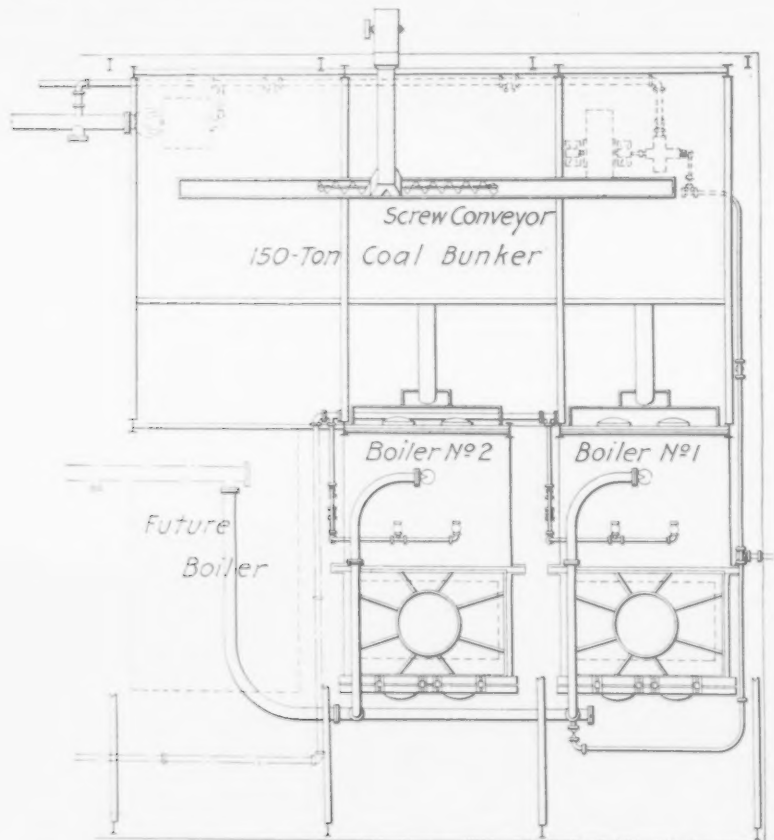
New Boilers (Above), Showing Chute Designed for (Future) No. 3 Boiler Aiding in Feeding No. 2 Boiler. Below is a group of two of the old boilers, in sharp contrast with the up-to-date fittings of their successors



The old boiler room covered four bays, with the firing floor 4 ft. below the engine room floor; while the two 500-hp. units in single settings occupy only two bays. The front columns are designed to carry the boilers and also their proportion of the coal bunker load, resulting in a clear-cut, unobstructed firing aisle. The boilers are set with the front water leg 10 ft. above the floor line. Each is served by a 60-in. diameter steel stack rising 145 ft. above the grates. The stack is supported on a separate structural steel gallow's frame, relieving the brickwork from all strain. Operation is at 150 lb. pressure, which may be increased later, when all low-pressure units are replaced.

Coal Capacity for Future

The coal bunker, with capacity of 3 tons per running foot, extends over three bays, to allow for installation of a third boiler, as well as furnishing 160 tons



Plan of New Boiler Room, with Feed-Water Heater at Upper Left and Blower at Upper Right, Both Shown Dotted

capacity in addition to yard storage. Since the bin extends one bay beyond the present boilers, one-third of its length would be inactive. This was met by having No. 3 chute discharge with No. 2 chute into No. 2 stoker hopper. It will be transferred over to No. 3 hopper when required.

The entire new boiler room occupies but three bays against the previous four bays. Advantage was taken of the space so gained to increase the size of the engine and pump rooms. With the immediate electrification of certain machines and a continued program along these lines, it is estimated that the ultimate electrical load will be 300 kw. An additional 300-kw. engine generating unit was purchased and installed in the space saved from the old boiler room. This space also houses the two old 150-kw. generating units, which previously were located in the adjacent manufacturing building. The space so released was turned over to the manufacturing department.

The steam and water piping was replaced up to the point of entrance into the mill. Long bends, welded necks and a minimum of joints are in evidence. The National Valve & Mfg. Co., Pittsburgh, furnished and erected the piping.

Ashes are conveyed through a Brady steam jet conveyor from the front of the boilers, underground a distance of 132 ft., to a Brady hollow tile ash tank

located over the railroad tracks. The tank may also discharge into trucks on the road adjacent to the railroad.

Air Supply to Heating Furnaces

Aside from the power plant, the air supply and distribution system for the oil-fired furnaces is of interest. The requirements call for about 22,000 cu. ft. per min. of air at 8 or 9 oz. pressure for the oil burners, forges and air curtains for the furnacemen. This was formerly supplied by two large blowers belted to a single slide valve engine. A large transport system conveyed it to the various parts of the building and distributed it through smaller ducts to the points of consumption.

This system was uneconomical in both generation and distribution. Not all the furnaces are in service at one time, but, with only one or two working, it was necessary to keep in operation one or both large blowers and the engine. The long transfer system was productive of loss through leakage and friction. The system was changed over to a number of individual motor-driven blowers, located at the point of application, each serving one furnace or a small group of furnaces.

A small 1700-r.p.m. Clamage blower was developed, with a flat curve characteristic, so that the pressure of 8 oz. is practically constant over a wide range of volume. The blower is furnished with an extended base plate so arranged that a motor of any one of several sizes may be directly coupled to it. The separate requirements of 2500 to 5000 cu. ft. per min. were thus met by one size of blower and three sizes of motors ranging from 10 to 20 hp. The gate is equipped with a suitable stop so fixed in the discharge pipe as to allow a maximum opening corresponding to the size of the motor, thus saving the motor from overload but allowing for the maximum air requirements for the particular furnace or furnaces. One view shows two of these blowers and a furnace.

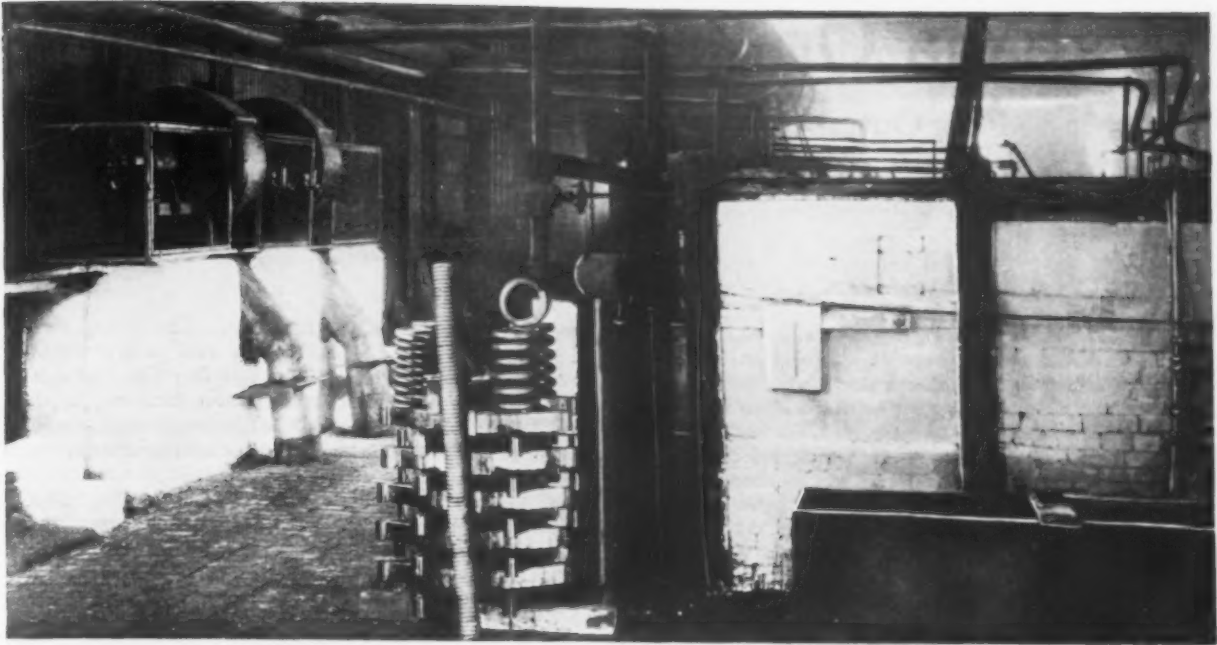
The plant has been in operation for over a year. The operating force consists of one engineer and one fireman, with a helper who takes care of the ash handling and miscellaneous jobs. One boiler at 150 per cent rating easily carries the entire load.

With the old plant three boilers were in operation. The coal consumption has been reduced about 35 per cent and, with further electrification, which is part of the future program, a further material reduction is expected. Repairs have been brought down to a minimum and the time-honored expensive Sunday overhauling has vanished, with a consequent saving in labor costs.

Suggestive Method of Attack

In drawing attention to the improvements at this plant the object is not to present a new power development nor any radical change in power house design and operation. Rather is it to indicate that noteworthy savings can be effected, both in economy and in freedom from shutdown, through rearrangement or abandonment of old and obsolete equipment and replacement by modern machinery, the development being carried out over a suitable period and not necessarily at one time. The small steam plant labors under a decided disadvantage when compared with the modern high-economy public service station of large output, modern interconnection and convenient service lines insuring reliable service, and it can usually be justified only where steam is required for process work, where exhaust steam can be used or where special conditions prevail.

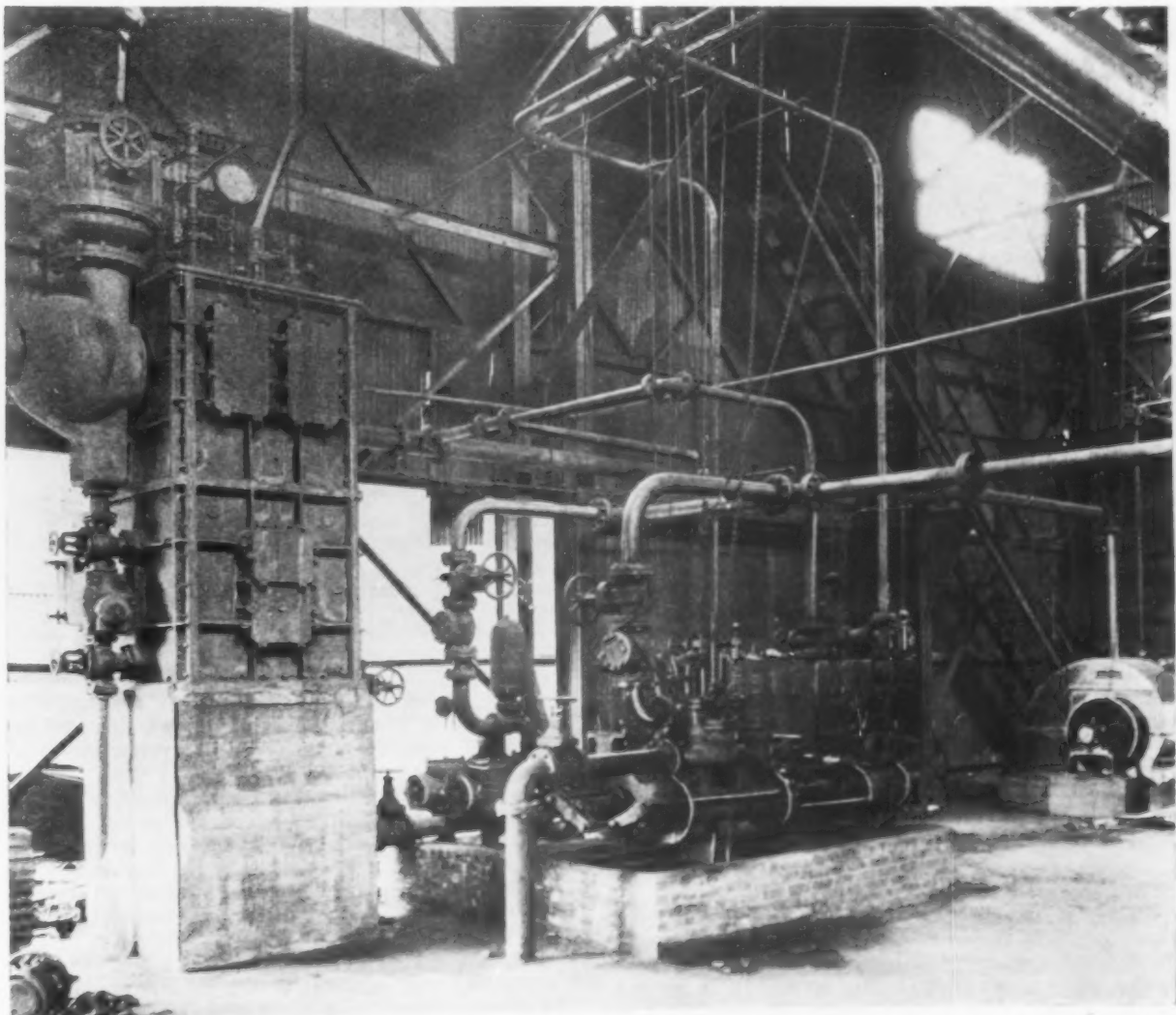
Frequently the decision as between purchased power



Heating Furnace (Right) with Special Blower Equipment (Left). Some of the varieties of springs made are shown in center

and the private plant revolves about some special manufacturing consideration and the actual cost of power becomes of secondary importance. Industrial conditions do not always permit those changes which are pertinent from a purely engineering standpoint.

But in all cases it is productive of economy to analyze the problem carefully and then outline a program of improvements which will develop along logical lines and as rapidly as financial and industrial conditions permit.



Auxiliary Equipment in the New Power Plant Has Ample Room. Feed-water heater, feed pumps and blowers are shown. At upper right corner appear two of the coal chutes from overhead bunker to stokers

Wabana Ore from an Island of Iron

Four Outcroppings on Bell Island—Some Workings Go Far Under the Sea—Future Possibilities

BY OLIN R. KUHN*

ONE of the largest known deposits of iron ore in the world outcrops on Bell Island in Conception Bay, Newfoundland. This island is about six miles long and two miles wide. With Kelly Island and Little Bell Island it forms the remnant of what was once a great trough of Cambrian rock, which extended from shore to shore, filling the whole area now occupied by the waters of the bay. Many types of iron ore are found on the island and adjoining mainland, but the only important development is that of the Wabana Deposit.

These deposits are sedimentary beds occurring interstratified with sandstones and shales. The associated rocks are of Cambrian and Ordovician age and the iron ore beds occur in both series, but the main workable beds are confined to the upper or Ordovician

averages about 8 ft. in thickness. The Dominion bed lies 350 ft. below the Scotia bed and ranges from 12 to 20 ft. thick, averaging about 16 ft. There is a total thickness of over 30 ft. of workable iron ore in these beds. The prevailing angle of inclination of the beds is about 8 deg. and the thickness of the ore increases with the depth.

Ore bodies on the island are mined by open pits or quarrying but, to reach the ore under the bay, slopes are driven down and the ore is taken out by skips. Some of these slopes have advanced for a distance of over two miles under the ocean and about 1800 ft. below it. The openings are carried large enough to operate electric dipper shovels for mucking and the ore is hoisted in 20-ton skips to the surface. These skips travel a distance of 12,800 ft. at the rate of about

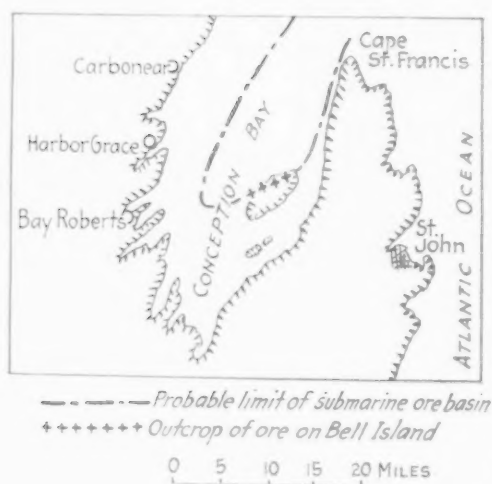
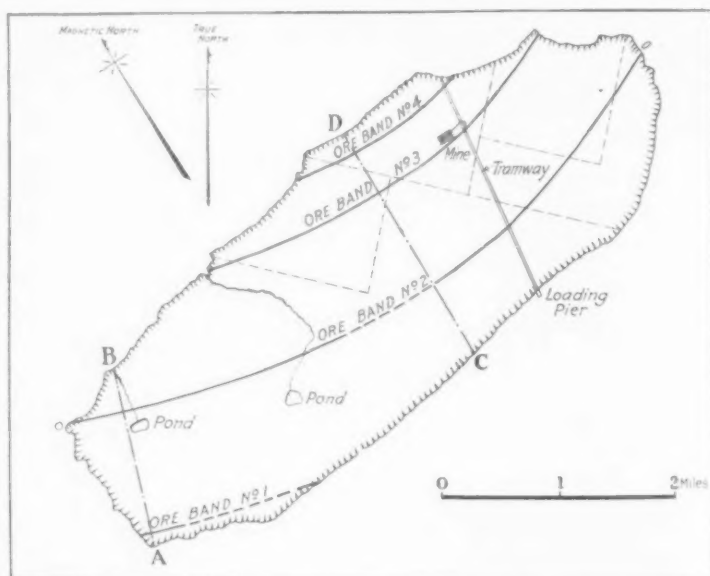


Fig. 1—General Location in Newfoundland of the Wabana Ore Basin, Showing Its Probable Submerged Extent (Above)

Fig. 2—Sketch Map of Great Bell Island, Conception Bay, Newfoundland, Showing Outcropping Locations of All Four Ore Bands Which Appear Above Water. Ore taken from band No. 3 is carried across the island to a loading pier on the south side. Lines A-B and C-D refer to transverse sections of the island, shown in Fig. 3



portion of the series. The iron ore occurs in strata forming an integral part of a series consisting principally of shales and sandstones. This series closely resembles the Clinton formations of the United States, although the ore is of higher iron content. There are 10 or 11 beds of ore on Bell Island, extending out under the waters of the bay, but only three or four of them are of workable thickness.

Thirty Feet of Workable Ore

Three most important beds, called the Little Upper, the Scotia and the Dominion Seams, are all workable on the land areas of Bell Island. The Dominion Seam is the only one at present that is worked in its submarine slopes. The Little Upper bed averages 6 ft. in thickness and is 60 ft. above the Scotia bed, which

3500 ft. per minute. When the skip arrives at the deckhead pocket the ore is transported two miles to the ore-loading dock. The workings are dry and require little pumping, due to the impervious layer of shale, which does not allow seepage.

There is no indication that the working limit of the ore bodies is anywhere nearly reached and it is quite probable that the haulage drifts can be economically increased to 5 miles in length. As the workings from Bell Island become too deep for economical hauling, drifts can be put down from the mainland and the ore taken out through them.

As the mines in the Wabana field are well equipped in every way, they should be able to produce ore cheaply. The ores are transported direct from the mining levels to a large hopper at the loading dock at Harrigan's Gulch, from which they run direct into the hold of the steamer at the rate of 2000 tons per hour. Vessels up

*Domier Steel Co., Buffalo.

Analyses from Various Parts of the Wabana Deposit											
Sample from:	Zone No.	Year	SiO ₂	Al ₂ O ₃	P ₂ O ₅	Fe ₂ O ₃	S	CaO	MgO	MnO	CO ₂
Average Sample	Zone No. 2.	1899	12.59	5.71	1.63	75.12	0.00	1.49	0.42	0.06	...
Average Sample	Zone No. 2.	1895	11.98	5.13	2.02	75.90	0.03	2.71	0.21	0.23	...
Submarine	Zone No. 2.	1912	8.39	...	...	75.38	...	...	...	...	...
Outcrop	Zone No. 2.	1912	12.66	...	...	48.60	...	...	...	...	18.17
Oolitic Hematite	Zone No. 2.	1911	14.80	...	...	73.04	0.03	3.24	...	...	...
Outcrop	Zone No. 2.	1911	17.64	...	...	68.26	0.01	1.16	...	...	...
Lower Part	Zone No. 4.	1912	9.85	3.23	2.26	77.82	...	2.42	0.37	...	1.05
Upper Part	Zone No. 4.	1912	4.66	3.05	2.11	73.25	...	2.88	1.14	0.78	10.78
Oolitic Hematite	Zone No. 4.	1912	15.29	9.63	1.07	63.55	...	1.54	1.45	0.26	0.43
Lower Ore	Zone No. 4.	1912	7.44	9.04	1.63	76.63	...	...	...	...	4.57
Upper Ore	Zone No. 4.	1912	5.36	...	1.54	84.96	...	...	...	...	1.22
Shale	Zone No. 4.	1911	41.00	18.20	...	19.57	...	...	...	...	...
Shale	Zone No. 2.	1911	34.43	...	0.11	37.68	...	...	...	...	...
Sandstone	Zone No. 2.	1911	76.50	6.05	...	2.14	...	...	...	...	...
Sandstone	Zone No. 4.	1911	62.83	9.96	0.30	20.06	...	...	...	...	...

to 13,000 tons can lie alongside the wharf and, with the exception of a few months in the middle of the winter, shipping continues all the year. Shipments to date have not exceeded 1,500,000 tons annually, but the mines are now developed so that they can produce from 2,500,000 to 3,000,000 tons per year. The following are the distances from the Wabana mines to the principal markets for the ore:

To: Sydney, Nova Scotia	415 miles
New York	1,110 miles
Philadelphia	1,240 miles
Glasgow, Scotland	1,900 miles
Rotterdam, Holland	2,300 miles
Middlesbrough, England	2,350 miles

Most of the ore has been taken in the past by furnaces in Canada or Nova Scotia. Prior to the war the United States received from 100,000 to 200,000 tons annually, while the exports to England, Germany and Holland took up the remainder of the production. Since 1916 practically all of the ore has been taken by Canadian furnaces, but about two years ago a sale of Wabana ore was made to the Hugo-Stinnes steel interests of Germany, calling for from 300,000 to 500,000 tons annually.

Character of Ores

The ores of the Wabana basin are dense, fine grained, red oolitic hematites, with occasional siderite. They carry from 48 to 57 per cent of iron and from 6 to 12 per cent of silica. The Scotia seam shows the highest grade ore and the Dominion seam, from which practically all shipments to date have been made, will average from 48 to 50 per cent in iron. By the use of picking tables and belts, the iron content is increased to from 50 to 52 per cent. The phosphorus is fairly high, ranging from 0.70 to 0.85 per cent, but the sulphur is low. The ore is dense and hard, having a specific gravity of from 3.95 to 4.12, and bulks about 9 cu. ft. per ton.

Due to the high phosphorus and silica content of the Wabana ores, they have not been desirable for use in the United States, especially in competition with the Lake ores, but as the Lake Superior ores become exhausted the Bell Island deposit will be a source of ore supply, especially for the Eastern furnaces.

The Nova Scotia Steel & Coal Co. at present owns more than 83½ square miles of submarine areas and

the Dominion Iron & Steel Co. owns a large area on the island (5¼ square miles). These two companies were consolidated into the British Empire Steel Corporation, which probably controls the greater part of the iron ore reserves of the Wabana basin. This company is the only one at present that is operating mines in the district. It also mines bituminous coal from deposits under the ocean in Nova Scotia and the output is 16,000 to 20,000 tons per month.

Quantity of Ore Available

While Bell Island covers a small area, the ore bodies probably extend out under the bay as far as Cape St. Francis and all authorities agree that the ore beds contain about 90,000,000 tons of ore per square mile of area. From this it would seem that the reserve

Average Analysis of Wabana Ore, Percentages

Iron	53.86
Manganese	0.65
Phosphorus	0.85
Sulphur	0.018
Silica	9.48
Alumina	3.55
Lime	1.81
Magnesia	0.84
Carbon dioxide	4.32
Combined H ₂ O	4.32

tonnage will in all likelihood be fixed by the working conditions and the costs rather than being limited by running into barren ground. If we assume that there is no technical impossibility in the way of working the ore from slopes from the main land or islands as far as Cape St. Francis, we have to deal with a reserve of some 10,000,000,000 tons or more. A certain portion of this area will be difficult to work and in the worked portions heavy allowance must be made for ore left to support the roof. It is usually assumed that not more than 50 per cent of the ore will be available.

Discounting for these factors, we may fairly assume at least 4,000,000,000 tons of recoverable ore in the Wabana trough and an equal amount of possible ore. The properties of the British Empire Steel Corporation, assuming 90,000,000 tons of ore per square mile of area,

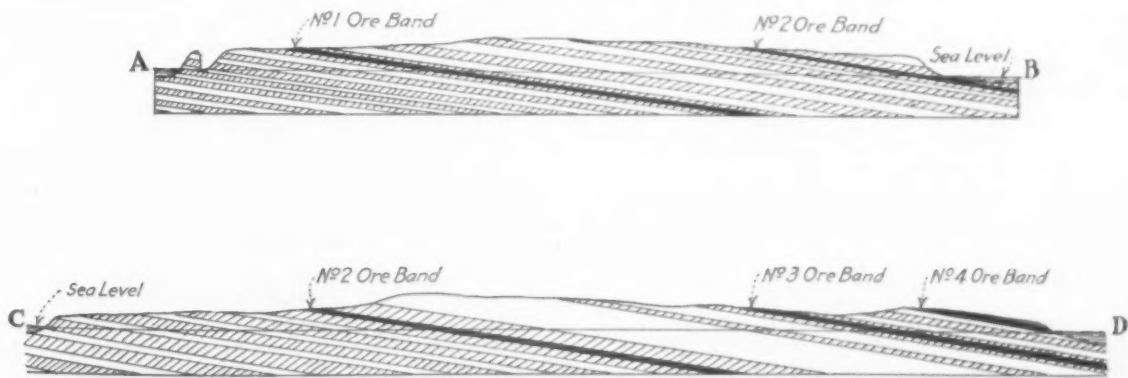


Fig. 3—Sections Across Bell Island in a Generally North and South Direction. Section A-B (see Fig. 2) shows the position of ore bands Nos. 1 and 2. Section C-D shows the position of ore bands Nos. 2, 3 and 4

contain some 8,000,000,000 tons of ore, of which about 4,000,000,000 tons should be recoverable. E. C. Eckel, in his testimony in the United States Steel Corporation dissolution suit, stated that there was over 3,500,000,000 tons of recoverable ore that could be taken out from the slopes originating on Bell Island, within a haulage of not more than five miles.

Estimates of the Available Ore Reserve of the Wabana Basin

Estimate by:	Year	Available	Possible
Stockholm Report	1910	3,635,000,000	
E. E. Ellis	1913	3,250,000,000	
E. C. Eckel	1914	3,500,000,000	Very large
Imp. Min. Res. Bur.	1922	3,500,000,000	Very large
G. R. Kuhn	1925	4,000,000,000	4,000,000,000

From the time the Wabana ore deposit was opened, in 1895, until 1909, only about 2,835,216 tons of ore were shipped outside of Canada. Since that time the production has been greatly increased and the mines are now capable of producing over 2,500,000 tons annually. Since the mines were opened in 1895 about 15,000,000 of ore has been produced.

Low-Cost Ore for Atlantic Seaboard

Wabana ores can be mined and shipped at a low cost—so low in fact that few ores could compete with them. E. C. Eckel stated in 1910 that the cost of the open pit Wabana ore delivered on shipboard was about 80c. per ton. The underground or submarine ore would

use in connection with, the operation of the smelting plant are to be admitted free of duty.

5—The companies are exempted from business profits tax, war income tax, and any future tax of a similar character. They are also exempted from municipal taxation for 10 years and thereafter are not to be called upon to pay more than \$10,000 annually.

6—The Government may grant the companies the Rocky River water powers, and the latter will pay annually 25c. per horsepower developed.

7—The ore tax will be payable quarterly on Jan. 15, April 15, July 15 and Oct. 15 in each year.

9—The companies must provide a sufficient quantity of coal to meet the requirements of the railroad, including steamers and docks, the requirements of the Reid company generally, and the domestic requirements of Newfoundland, at f.o.b. prices per ton current from time to time on coal of similar quality sold for shipment to Nova Scotia ports. The companies also engage to establish a coal depot in Newfoundland, if the Government so request.

10—The companies agree to abide by any labor dispute settlement laws of the country.

11—If the Government so request, the companies shall build houses on Bell Island for their employees on a 20-year purchase plan.

Since this agreement was signed the production of the Wabana mines has averaged over 1,000,000 tons annually, but the improvements and developments are

Shipments of Iron Ore from Bell Island

Year	United Kingdom	Canada	United States	Germany	Holland	Total
1909	53,900	616,950	85,350	.....	123,920	880,120
1910	57,420	641,885	254,750	.....	105,825	1,059,880
1911	61,080	789,735	194,020	7,400	122,950	1,175,185
1912	54,100	642,395	178,055	38,330	104,050	1,016,930
1913	37,210	870,712	189,624	46,816	98,838	1,243,200
1914	115,840	785,245	170,590	51,790	122,332	1,245,797
1915	69,930	383,260	17,500	.....	41,300	511,990
1916	35,000	799,310	.....	.....	.....	834,310
1917	.....	902,380	.....	.....	.....	902,380
1918	.....	731,080	.....	.....	.....	731,080
1919	.....	709,338	.....	.....	.....	709,338
1920	.....	.....	.....	.....	.....	527,720
1921	.....	.....	.....	.....	.....	466,480
1922	.....	.....	.....	.....	.....	982,140
1923	.....	.....	.....	.....	.....	1,071,430
1924	.....	.....	.....	.....	.....	1,250,000

probably cost from \$1 to \$1.20 per ton loaded on board ship at Bell Island. Actual charters under which ore was being shipped at that time ranged from 70c. to 80c. per ton for shipments from Bell Island to Philadelphia, when no back freight was hauled. This would make a total cost for Wabana ore delivered Philadelphia of \$1.75 to \$2.25 per ton or about 4c. per unit. Lake Superior ores at that time were selling at from 11c. to 12c. per unit at Philadelphia. The Wabana ore is probably the cheapest ore supply in the world delivered at Eastern Atlantic ports or in German or English ports.

Prior to 1919 there was a tax of 7½c. per ton on all ore mined and shipped from this deposit, but this arrangement expired. In 1921 the Government of Newfoundland made an agreement with the Dominion Iron & Steel and the Nova Scotia Steel & Coal companies whereby it hoped to establish an iron smelting industry in Newfoundland and increase the ore production. The conditions of this agreement were as follows:

1—An export tax of 25c. per ton for 20 years on all ore shipped to Nova Scotia.

2—Free exportation to all countries except Dominion of Canada. The companies, however, must spend \$3,000,000 during the next 5 years in improvements and developments and give notice before Jan. 1, 1926, of their intention to erect a smelting plant capable of producing annually 100,000 tons of pig iron and have such plant erected before Jan. 1, 1928; otherwise the Government will collect 10c. per ton on ore exported to all parts of the world other than the province of Nova Scotia.

3—In any year that shipments to Nova Scotia amount to 1,000,000 tons, there shall be no tax on the ore shipped to other places in Canada.

4—All materials for the construction of, and for

now practically completed and the production will probably increase to more than double this amount over the next few years. While the production of the Wabana mines in Newfoundland has never been large, when compared with that of the Superior district in the United States, still the Wabana deposits contain the largest reserve of iron ore known per square mile of area. The low cost of mining makes this reserve a desirable supply to be called upon in future years.

Abnormality in Case Carburized Steels

The object of an investigation being conducted by the United States Bureau of Mines is to determine the cause of, and means of controlling, the varying carburizing and hardening characteristics of steels. The work will be carried on in cooperation with the Bureau of Standards. This is a new problem for the Bureau of Mines although the Bureau of Standards has been working on it from the testing end. It was undertaken at the request of the steel industry and will be attacked from the standpoint of production.

Recent orders for tumbling mills for the Pittsburgh Malleable Iron Co., Pittsburgh; the Dayton Malleable Iron Co., Dayton, Ohio; and the Ypsilanti Foundry Co., Ypsilanti, Mich.; and for sandblast equipment for the Gartland-Haswell-Rentschler Foundry Co., Dayton, Ohio; for the Allen Mfg. Co., Nashville, Tenn.; for the Elmira Foundry Co., Elmira, N. Y., and for the Buckeye Steel Castings Co., Columbus, Ohio, all taken by the W. W. Sly Mfg. Co., Cleveland, are indicative of activity in the castings field.



B. H. ACKLES

Mr. Ackles, Whose Business Connection Is With the T. B. Rayl Co., Was Re-elected President of the Association



T. W. CARLISLE

Mr. Carlisle of the Strong, Carlisle & Hammond Co., Cleveland, Is First Vice-President and Chairman of Machine Tool Section and Mr. Welles of Charles H. Besly & Co., Chicago, Is Second Vice-President



E. P. WELLES

Profits Needed, Say Supply Dealers

Fair Remuneration for Service Rendered Is Theme of Annual Convention of National Supply and Machinery Distributors' Association

SEVERAL new features were apparent at the twenty-first annual convention of the National Supply and Machinery Distributors' Association, Atlantic City, N. J., April 26, 27 and 28. One of these was visible immediately upon entering the convention premises at the Ambassador Hotel. Some 30 or more manufacturers, who have recently become associate members of the association, attested their interest in the meeting by placing their latest products on exhibition. These ranged from bronze bushings and other castings, wrenches, torches, pulleys and transmission machinery, saws, etc., to portable electric machinery.

Another departure was the welcoming of all distributors and manufacturers whether members or not.

Less Thought to Volume, More to Profits

Much of the morning session on Monday was devoted to routine business, but included the annual address of B. H. Ackles, president, and also the report of the secretary, George H. Fernley. This report covered a great variety of subjects of interest both to manufacturer and distributor, and brought again to the attention of members decisions of various courts on the subject of prices before voicing what appears to be a much discussed subject recently, viz., less thought should be given to volume and every energy bent toward securing a net profit. This thought was touched on by other speakers during the day.

Emphasis was laid by Secretary Fernley on the need of cooperation between manufacturers and their best customers, the distributors. Competition between them should be eliminated as unethical and expensive.

The importance of furthering simplification programs in cooperation with the Department of Commerce was emphasized in the report as being of distinct benefit in the interest of economy.

The secretary outlined a service performed by the association's office which is rather unusual. This is the collection of delinquent accounts, which is done without charge to the members—35 members last year submitted 384 accounts totaling about \$32,000, about 75 per cent of which was collected.

At the Monday afternoon session the first talk was by W. L. Chandler, secretary National Association of

Purchasing Agents. The purchaser should be willing to allow the seller a fair profit, he said, and cooperate with the seller, but the cooperation should not all be one-sided. Cost of salesman's visits should be reduced, as the buyer pays for all unnecessary costs. The speaker claimed that 25 per cent of the salesman's calls are useless expense as he calls on many concerns who could not possibly use the product he sells. This saving would also save much time for the buyer in addition to making a direct cost saving. Visits from salesmen have increased about 20 per cent per year and the average day's interviews for a purchasing agent numbered 30. If salesmen were better informed, that would be a real step in cooperation. The National Association of Purchasing Agents is working toward a goal of a four-year course in the study of purchasing.

Mr. Chandler also stated that there has been established largely through the instrumentality of that association a standardized bill form for national use, similar to that now used by railroads. This is in addition to the standard size for printed matter or catalogs of 7 $\frac{1}{4}$ in. by 10 $\frac{1}{4}$ in., which was recommended several years ago. Mr. Chandler also suggested that until simplified sizes are adopted and excess sizes eliminated, in accordance with simplified practice recommendations, the simplified sizes be cataloged in bold face type.

Company Pays Bonus to Customers

C. D. Garretson, president Electric Hose & Rubber Co., Wilmington, Del., said the reason his company sold exclusively through distributors was that it was more economical to do so. Further, that the service of distribution should receive a fair profit. It is just as unethical, he said, to place too low a valuation on that service as one too high.

The plan followed by the Electric Hose & Rubber Co. is to pay to its stockholders a certain percentage of the earnings, based on sales, which are maintained at a one-price level; then an equal amount is paid to the employees as a bonus. Each customer (the distributor) also receives in cash at the end of the year a return of part of the profit his business made pos-

sible. This is figured on the basis of his orders. Thus the distributor receives an extra discount.

Ways of Increasing Net Profit Discussed

The Tuesday morning session was opened by distribution of a chart prepared by Secretary Fernley covering a research on overhead expense, turnover and gross margin. There was considerable discussion of ways and means of increasing net profit. W. L. Rodgers, Pittsburgh Gage & Supply Co., Pittsburgh, stated that one way to get a profit on all articles handled was to stop handling those articles that do not show sufficient profit. Frequently a profit could be made if the seller would not compete with himself and quote so low a price that he would secure no profit. Another source of profit losses, said Mr. Rodgers, is in small orders. Investigations showed that as much as 10 per cent of orders received by his company called for less than \$2 each. C. C. Bond, Charles Bond Co., Philadelphia, said he believed the salesman was frequently at fault for many of the small orders. If the salesman would explain to the buyer that it costs as much to deliver 25 pieces as 200, the probability is that many buyers would make their purchases in larger quantities. Other suggestions were made ranging from a service charge idea to intimating over the telephone that the small order would be ready when called for.

George Puchta, Queen City Supply Co., Cincinnati, in referring to the salesman's influence on the size of orders received, quoted an old friend of his in Cincinnati who once said: "You men are not salesmen, you are buyers for the customers." Mr. Puchta suggested that better cooperation between dealers whose territories overlap could be secured if the country were divided into twelve sections, by States or other divisions, and the groups of dealers in these sections get together periodically and talk things over.

Felix H. Levy, former special counsel to the United States Department of Justice, scheduled for an address, "The Remedy for Price Cutting," said that Mr. Puchta's suggestions should work out very well, indeed, provided those attending the meetings were very careful to "agree" to nothing no matter how much they might talk over prices, methods, etc. The main point was to agree to nothing and thereby avoid conflict with the Sherman act.

Fair Remuneration Necessary for Business

Mr. Levy said that Secretary Hoover's statement of the general prosperity of the country was based more on the general employment situation rather than on general profit making; that the Sherman law and Clayton act hinder profit making. The welfare of the country, said the speaker, cannot be at its best unless industry has fair remuneration. The price cutter, he said, not only militates against the industry in which he is engaged, but against prosperity generally. Mr. Levy then went on to cite some recent rulings of various courts, among the the Supreme Court ruling that the manufacturer can control the sales price on his product, in that he can refuse to sell to a jobber who does not maintain the retail price on that product.

W. T. Todd, Somers, Fittler & Todd Co., Pittsburgh, voiced as his opinion that one reason for profits being low is that engineering time and service are infrequently charged for.

A very interesting address was by W. C. Wetherill, National Metals Utilization Committee, Washington, on the work being done under the direction of Secretary of Commerce Hoover by the Division of Simplified Practice.

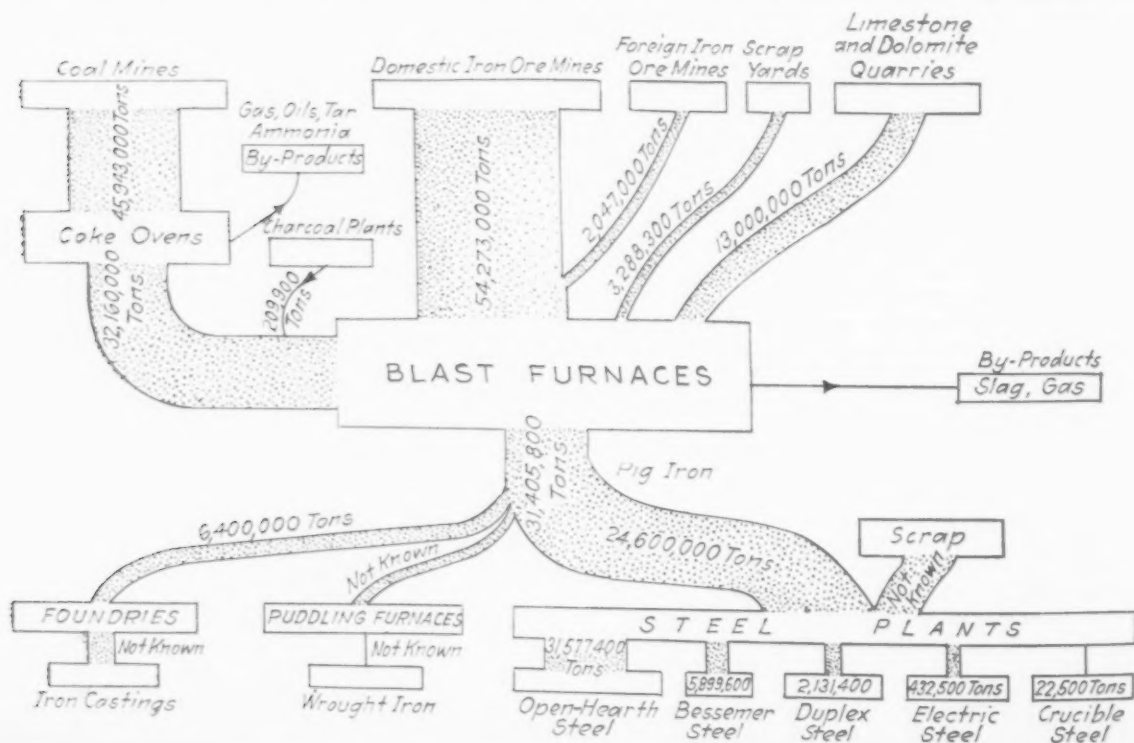
A paper to have been presented by Victor Wilmot, Dodge Mfg. Corporation, on "Direct vs. Dealer Distribution," was read by E. S. Grant of that company.

The convention ended with the reelection of all the officers for another term.

Movement of Materials and Production in the Iron Industry

COST studies on pig iron made by the United States Tariff Commission were made public March 13, as reported at pages 780 and 781 of our issue of March 18. The report, which was somewhat voluminous, contained the diagram shown on this page. Because of its

general interest, we reproduce it here. It relates to the operations of 1924 and shows the flow of raw materials through the various channels to the blast furnaces and then the flow of pig iron through the various plants which work this commodity into finished forms.



An Opportunity for Conservation*

Great Losses Due to Lack of Cost Estimates in Commercial Metallurgical Research—Constructive Suggestions—Bearing on Education

BY DR. F. M. BECKET

FOR the past 20 years it has been my privilege to investigate and appraise the technical and commercial feasibility of processes directed to the manufacture of a wide variety of products. These processes have been presented as commercial possibilities by engineers or experimentalists in many fields and in various stages of development. The faker's case has no bearing on my thesis.

The unfortunate cases are those of the honest and conscientious experimentalists who expend much mental effort in attempting and very often accomplishing goals which they believe to be commercially attractive. Still sadder are the cases of the small group, sometimes including the capitalist who, after successful experimental work, organize a small company, erect a modest plant and develop the technology of the process, properly desiring to demonstrate at least in a semi-commercial way the feasibility of the whole scheme, and believing that at such stage the enterprise will more readily interest capital and return a large profit on the money previously invested.

The Great Error

It is deserving of special emphasis that, in a large proportion of the hopeless cases that have come to my attention, the great error, the cause of the wasted effort, has been found either in complete omission of any attempt to estimate the cost of manufacture, or more often to predetermine it with reasonable accuracy. In all of these cases a revealing estimate could have been made by assuming theoretical yields from the chemical reactions and excellent results in connection with all other factors.

The last thought is worthy of a little elaboration in that it provides a method of precluding these extremely wasteful procedures. By assuming theoretical yields from the chemical or electrochemical reactions, which are oftentimes interestingly clever, and by further taking the most optimistic view of all other factors that an experienced, reasonably intelligent engineer would dare to assume, it has been possible by cost estimating in this way to convince many who have experimented diligently that they have been seeking an unfortunate, worthless goal.

The saddest instances revealed by this method are those in which mental energy and capital have been wasted to a much greater extent, in which the technology of a process has been carried to successful demonstration on a minor scale and for which great economy has been forecast in the operation of a plant of commercial size. In cases of the latter class, cost estimates had been prepared by the proponents. Then wherein lies the difficulty? The most serious errors are those of complete omission of important cost factors rather than the application of poor judgment to the factors considered, although frequently both errors are combined.

Some Specific Cases

That a stronger impression may be left of the type of pitfalls that have brought keen disappointment to many sanguine, and in some cases obstinate, persons, it may be well to depart from broad generalizations and mention a very few specific cases drawn from actual experience. For obvious reasons the citations

will intentionally avoid identification of processes or persons.

Within the past decade a process for the extraction of potash from an abundant domestic mineral was devised, considerable preliminary work was performed, the technology of the novel steps was developed in semi-commercial apparatus, and the process was offered to one of the companies with which I am connected. In common with other processes of the kind, the transition from potash-bearing rock to a soluble potash salt offered the major problem, the solution of which presented the chief novelty. Hence most of the money and effort were expended on the design, development and operation of the furnace in which the rock was decomposed at a moderate temperature through ingenious reactions. Good thermal economy and a high recovery of soluble potash were attained and were accepted as criteria of commercial success. The steps subsequent to leaching of the furnace product, which were principally washing and evaporating operations, fretted the chief technologist and his associates not at all, and had never been carried out quantitatively, on the ground that they represented "perfectly simple chemical engineering."

Early in our investigation an estimate was made of the cost of operating this complete process, based on the assumption that substantially theoretical yields would result from the furnace reactions, and it brought to light that the cost of evaporating the necessarily dilute solutions, even by the most efficient means, precluded the commercial success of the project, if the average selling prices of the potassium salt and the by-products were duly considered. Neglect to estimate the cost of "perfectly simple chemical engineering" processes explains the failure of this enterprise.

An example of a different class is represented by a high-temperature, electrolytic process for the reduction of a metal having a melting point over 1500 deg. C., which was offered after considerable work had been conducted on a moderate scale. Samples of the product were presented with the claims for predicted commercial success. In this instance, quite apart from glaring practical difficulties that had not been solved and speculation concerning the quality of the product, the estimated cost of the three items, raw materials, power and labor, assuming 100 per cent current (amp.hr.) efficiency and a large scale operation, slightly exceeded the highest selling price of the product over the several years preceding. The market price of this product is today 40 per cent less than at the time of the investigation. Later, this process met with a reception enthusiastic enough to be optioned by another group, who continued experimentation for a few months, but it was soon thereafter abandoned.

I could continue to cite from my own experience numerous examples, some containing the element of surprise even to a greater degree. There is no need for further reminiscence. It is not my purpose to analyze and explain the numerous errors of engineering and financial judgment which are being made continually in attempts to forecast the commercial success of proposed electrochemical undertakings, and I do not wish to pose as an expert in such matters. Such a discussion would involve broad subjects of engineering and economics beyond the intentional limits of this address.

So many examples having come within my own experience, it is reasonable to assume that similar occurrences have been shared by many others—indeed,

*From the annual address of the retiring president of the American Electrochemical Society at its convention in Chicago, April 23. The author is vice-president Union Carbide & Carbon Co., New York.

at least some confirmation of this has been gathered from engineering friends—and, therefore, I contend that in the aggregate a stupendous waste of technical effort still continues through the performance of experimental work to a substantially useless end, because reasonably accurate cost estimates are not being made to determine the economic accomplishment in the event of technical success.

Research in Pure Science

Less emphasis would be laid if useless commercial experimentation had eventual value as research in pure science, a result seldom realized because the motives are usually different. Much of the research in pure science has been actuated by a desire for fundamental knowledge and the progress of mankind, without regard to financial reward. Love of service and the search for truth have been the impelling forces. Nevertheless, there is increasing realization that the search for basic principles has eventually returned the highest financial compensation. But whatever the motive, purely scientific research has given us an increasingly better world in which to live—physically without question, and spiritually let us hope. We surely sympathize with the urgent appeals that have been made publicly of late for a great expansion of the scale upon which research in pure science is being pursued in this country.

The theme so far has been predominantly critical. My desire is not only to ask you to consider more carefully this particular type of wasteful effort, but to offer some constructive suggestions.

A fairly thorough search of the books and technical articles relating to industrial cost accounting and allied subjects has shown the lack of a practical guide adapted to cost prediction of this type. Cost accounting has become a specialized business, particularly in our larger manufacturing concerns, but seldom does the practical operating man find opportunity to learn cost-keeping methods, especially those finally applied in the administrative department. Fortunate are the experimentalists who have acquired the combined experience of practical production and cost accounting.

A Suggestion for Cost Estimation

The schedule presented herewith portrays the general lines upon which a cost estimate may be drawn. From this the novice can derive constructive suggestions, although some of the initiated may criticize it as obvious and therefore unnecessary. Nevertheless, it is presented with confidence in its value, since my own experience has shown that the timely use of even this slight assistance toward approximate cost prediction would have saved a vast amount of work which is known to have been wasted in fore-doomed undertakings.

Typical Schedule for Cost Estimation— Chemical Industries

Producing Costs: Basic raw materials delivered; other process materials; power; electrochemical and mechanical; fuel; electrodes and fittings; process tools and supplies; repair materials; equipment and structures; packages; manufacturing wages; repair wages; equipment and structures; works salaries; works general expense.

Management and Marketing: Salaries; rent; accounting; selling; legal service; royalties; insurance; general expense.

Capital Costs: Amortization; depreciation; insurance; taxes: Federal and State.

The principal object of such a schedule is to insure that no important item of cost shall be forgotten. Naturally, each class of process will call for modification of any typical schedule. A mechanical guide of this kind is of great assistance even to the experienced estimator.

Before attempting to predetermine costs, it is a

logical procedure to select an appropriate scale of operation and then to visualize the complete plant and organization required for the desired end. However clearly a process may have been conceived as a succession of chemical reactions and unit processes, cost estimating each material and operation develops a clearer picture of the producing and economic structures; and the mental courage requisite to develop a thorough cost estimate will find its reward in an enhanced understanding of the project. In every case the estimate deserves careful analysis. An estimate which reflects favorably on the process will show points of strength and of relative weakness, so that further work can be directed toward factors in which further economies should be sought or can most easily be secured. The autopsy on an unfortunate process will usually reveal the principal cause of failure and will at least dictate the need of a new line of attack. If the product is already being made by another method, an estimate of the corresponding cost may wisely be attempted since, however ingenious a new process, its competitive utility will be slight if the cost is relatively high. Clearly a cost estimate is the logical nucleus around which to gather data for the complete engineering report which the critical executive desires.

Value of Cost Estimation

It is not my intention to discuss the details of cost estimation nor to proffer suggestions to the professional cost analyst or proficient engineer, and hence the foregoing schedule is not so branched and twiggied as to resemble a chart showing the multitudinous derivatives of coal tar. Such elaboration would be irrelevant; furthermore, whatever value exists in the thoughts here presented lies in the ease of their apprehension.

To young experimentalists in industrial electrochemistry, to the many older workers who apparently have not yet awakened, I appeal for adoption of the practice of predetermining costs; and I extend my appeal to the skilful members of this society not only to proclaim the principle, but to render more service through assistance to the inexperienced.

The extent of the conservation possible by adoption of this practice is indeterminable, but this does not deter me from expressing the opinion that in this one direction the potential economy of human effort alone represents an appreciable increase in our rate of progress in chemical industry. If financial terms will lend weight to my contention, I can say conservatively from my own knowledge that several millions of dollars, in all probability many millions, have been wasted on experimental projects for the lack of timely cost estimation. This being the case of a single observer, what must the figure be in the aggregate? However, we should rather regret the progress in pure science and industry which these millions could have made possible.

[The address closes with a discussion of the relation of cost accounting to the courses in chemical engineering in schools of technology.]

"The Effect of Phosphorus on the Resistance of Low Carbon Steel to Repeated Alternating Stresses" is the title of Bulletin 25 of the mining and metallurgical investigations conducted under the auspices of the Carnegie Institute of Technology, the United States Bureau of Mines and the Mining and Metallurgical Advisory Boards at Pittsburgh. The authors are F. F. McIntosh and Wayne L. Cockrell, professor of metallurgy and research fellow, respectively, Carnegie Institute of Technology. The pamphlet is published by the institute. The bulletin is a record of a study of the influence of phosphorus on the fatigue life of low-carbon steels.

The dismantling of its Monessen plant of the Carnegie Steel Co., at Monessen, Pa., is now under way. It is being done by the United Iron & Metal Co., 434 Diamond Street, Pittsburgh. The plant built 26 years ago has not been active in the past few years. It produced merchant bars, bands, hoops and cotton ties and had a rated annual capacity of 60,000 tons of those products.

Heavy Machinery Exports Continue

March Total Exceeded Only Three Times in 1925—First Quarter Far Above Last Year—Imports Also Large

WASHINGTON, May 4.—Representing an increase of almost \$3,000,000, machinery exports in March were valued at \$35,241,960, as against \$32,269,707 in February. Compared with March of last year, when machinery exports were valued at \$33,932,473, the increase is a little more than \$1,300,000. For the nine months ended March 31, 1926, machinery exports were valued at \$296,366,284, an increase of \$61,542,811, or 26 per cent over the corresponding period of last year, when the value was \$234,823,473.

Exports of all metal-working machinery in March were valued at \$1,297,616. Exports of power-driven metal-working machinery included in THE IRON AGE table numbered 787 units, with a value of \$620,515, compared with 641, valued at \$536,690, in February.

Reflecting a slight gain, imports of machinery in March were valued at \$1,567,912, as against \$1,469,170 in February. For the nine months ended March, 1926, imports of machinery were valued at \$10,620,836, an increase of more than \$3,000,000, when compared with imports for the corresponding period of one year ago, when the total value was \$7,457,947.

While in some individual items decreases were reflected in machinery exports in March when compared with exports in February, on the whole gains were consistent. Notable among increases that have been

made for some time in exports of machinery are those for electric locomotives. For March, 1926, exports of electric locomotives were valued at \$349,108, as against only \$21,127 in March of last year, according to the records of the Bureau of Foreign and Domestic Commerce. Exports of steam locomotives in March were valued at \$233,248, a sharp decline under February, when exports of this type of locomotive were valued at \$829,952.

Of the steam locomotives exported in March, Canada took 12, valued at \$131,172, while for the nine months, shipments to Canada included 59 locomotives with a value of \$1,012,614. Cuba took three locomotives, valued

Imports of Machinery Into the United States
(By Value)

	March		Nine Months Ended March	
	1926	1925	1926	1925
Metal-working machine tools.....	\$38,610	\$38,573	\$296,535	\$295,444
Agricultural machinery and implements.....	560,305	359,337	2,440,530	1,842,257
Electrical machinery and apparatus.....	69,851	101,327	732,098	1,243,065
Other power generating machinery.....	1,424	53	19,915	28,386
Other machinery.....	716,905	363,710	5,601,858	2,976,482
Automobiles and vehicles, except agricultural....	180,817	136,237	1,529,900	1,162,313
Total.....	\$1,567,912	\$999,237	\$10,620,836	\$7,457,947

United States Exports and Imports of Machinery

	Exports of Machinery	Imports of Machinery	Exports of Metal-Working Machinery
The year 1924.....	\$317,040,424	\$9,711,618	\$8,644,444
1925.....			
January.....	28,117,952	803,829	845,986
February.....	23,215,776	814,703	707,445
March.....	33,932,473	999,237	1,364,930
April.....	36,033,980	1,167,099	1,245,634
May.....	32,164,865	861,655	1,230,914
June.....	28,746,061	935,487	1,093,325
Fiscal year.....	338,715,075	10,404,337	10,776,079
July.....	32,320,533	905,872	1,188,069
August.....	38,768,823	747,912	1,308,372
September.....	30,719,342	956,250	989,379
October.....	31,271,007	996,557	905,826
November.....	30,084,814	876,113	1,007,376
December.....	37,933,511	1,448,316	1,155,660
The year 1925.....	385,376,676	11,577,911	13,052,916
1926.....			
January.....	34,590,693	1,659,971	853,276
February.....	32,269,707	1,469,170	1,294,934
March.....	35,241,960	1,567,912	1,297,616
Nine months.....	296,366,284	10,620,836	10,000,508

Machinery Exports from the United States

	(By Value)		Nine Months Ended	
	March, 1926	March, 1925	March, 1926	March, 1925
Locomotives.....	\$233,248	\$409,292	\$5,642,965	\$5,545,006
Other Steam Engines.....	39,679	289,213	943,320	1,417,315
Boilers.....	154,757	207,295	1,879,407	1,419,195
Accessories and Parts.....	123,329	199,102	1,570,474	1,393,139
Automobile Engines.....	1,960,337	1,985,789	9,768,465	6,151,434
Other Internal Combustion Engines.....	598,208	620,757	5,577,517	5,120,321
Accessories and Parts for.....	443,663	440,772	3,045,675	2,478,947
Electric Locomotives.....	349,108	21,127	1,465,999	1,359,090
Other Electric Machinery and Apparatus.....	650,007	1,219,421	5,259,946	5,450,662
Excavating Machinery.....	315,189	228,917	2,942,037	1,639,183
Concrete Mixers.....	72,479	59,789	642,794	596,820
Road-Making Machinery.....	178,877	147,725	1,171,408	833,337
Elevators and Elevator Machinery.....	418,760	182,125	3,011,196	1,431,355
Mining and Quarrying Machinery.....	1,453,987	1,023,198	9,459,286	7,380,102
Oil-Well Machinery.....	1,279,304	1,026,577	9,632,265	5,197,343
Pumps.....	565,065	663,639	4,771,094	5,115,032
Lathes.....	109,475	261,593	2,072,577	1,188,253
Boring and Drilling Machines.....	75,255	60,582	461,734	544,137
Planers, Shapers and Slotters.....	25,475	76,773	291,412	370,443
Bending and Power Presses.....	104,150	74,412	558,974	619,732
Gear Cutters.....	88,525	84,196	581,017	427,761
Milling Machines.....	79,911	227,121	716,574	822,221
Thread Cutting and Screw Machines.....	75,007	89,007	823,661	455,512
Forging Machinery.....	88,351	23,963	225,916	189,558
Sharpening and Grinding Machines.....	201,753	312,495	2,041,811	1,649,801
Other Metal-Working Machinery and Parts of.....	339,369	520,678	3,397,681	3,291,893
Textile Machinery.....	867,284	1,015,016	9,189,471	7,115,920
Sewing Machines.....	682,881	865,031	6,253,196	5,581,743
Shoe Machinery.....	98,923	134,748	924,999	1,164,470
Flour-Mill and Gristmill Machinery.....	105,731	84,146	647,762	570,719
Sugar-mill Machinery.....	243,145	257,849	6,577,986	7,676,222
Paper and Pulp Mill Machinery.....	240,469	109,857	1,708,105	1,241,577
Sawmill Machinery.....	115,744	91,550	691,081	585,968
Other Woodworking Machinery.....	98,893	98,513	1,030,559	956,329
Refrigerating and Ice Making Machinery.....	283,491	207,616	2,415,290	1,443,476
Air Compressors.....	466,231	363,904	3,163,649	2,313,934
Type-riters.....	1,980,559	1,582,456	13,986,069	12,027,464
Power Laundry Machinery.....	119,751	94,622	775,669	693,390
Typesetting Machines.....	343,421	283,675	2,709,496	2,597,670
Printing Presses.....	719,832	692,664	4,419,995	3,999,470
Agricultural Machinery and Implements.....	7,039,597	7,515,871	67,030,670	43,381,182
All Other Machinery and Parts.....	10,943,350	9,878,967	97,516,382	81,286,247
Total.....	\$35,241,960	\$33,932,473	\$296,366,284	\$234,823,473

Exports of Power-Driven Metal-Working Machinery

	March, 1926		February, 1926	
	No.	Value	No.	Value
Engine lathes.....	6	\$11,276	18	\$44,922
Turret lathes.....	9	27,358	17	52,440
Other lathes.....	75	70,801	50	78,747
Vertical boring mills and chucking machines.....	14	26,248	8	5,700
Thread cutting and automatic screw machines.....	135	75,007	41	44,972
Knee and column type milling machines.....	14	20,975	6	15,333
Other milling machines.....	43	53,936	36	43,353
Gear-cutting machines.....	68	88,525	17	49,368
Vertical drilling machines.....	46	10,626	30	8,092
Radial drilling machines.....	5	8,061	5	9,791
Sensitive drilling machines.....	122	17,078	65	1,046
Other drilling machines.....	92	13,341	74	8,693
Shapers and slotters.....	34	34,917	14	11,476
Planers.....	2	558	2	1,247
External cylindrical grinding machines.....	52	99,026	171	93,324
Internal grinding machines.....	22	46,328	29	43,478
Metal-working tool-sharpening machines.....	48	16,454	58	25,308
Total.....	787	\$620,515	641	\$536,690

at \$38,900, in March and 48 valued at \$964,357 during the nine months ended March 31. Mexico took two locomotives, valued at \$21,680, in March and during the nine months took 20 locomotives, which were valued at \$138,815.

Sewing machines to the value of \$682,881 were exported in March; during the nine months the value was \$6,253,196. Mexico was the leading country of exports of sewing machines in March, taking 4149, valued at \$157,597, while for the nine months that country took 30,016 sewing machines, valued at \$953,692. The United Kingdom in March took 1329 sewing machines, valued at \$91,357, and for the nine months took 28,415, valued at \$1,194,743. Sewing machines shipped to Colombia in March numbered 3007 with a value of \$85,209, while for the nine months the number was 17,152, valued at \$479,676.

France was the leading country for exports of American typewriters in March, but the United King-

dom ran a close second. The number shipped to France for the month was 5649, valued at \$288,224, while for the nine months the number was 24,740, valued at \$1,389,034. Typewriters shipped to the United Kingdom in March numbered 5175, valued at \$286,303. For the nine months the United Kingdom easily was the leading country for exports of American typewriters, taking 49,107 machines, valued at \$2,697,602. Exports of typewriters to Mexico in March numbered 1716, valued at \$95,426, while for the nine months Mexico took 11,097, valued at \$597,822.

France also was the leading country for exports of American harvesters and binders for both March and the nine months' period. During the month France took 4031, valued at \$623,175, and for the nine months took 10,912, valued at \$1,734,877. Harvesters and binders shipped to "other Europe" in March numbered 1961, valued at \$302,658, and for the nine months the number was 2919, valued at \$466,967.

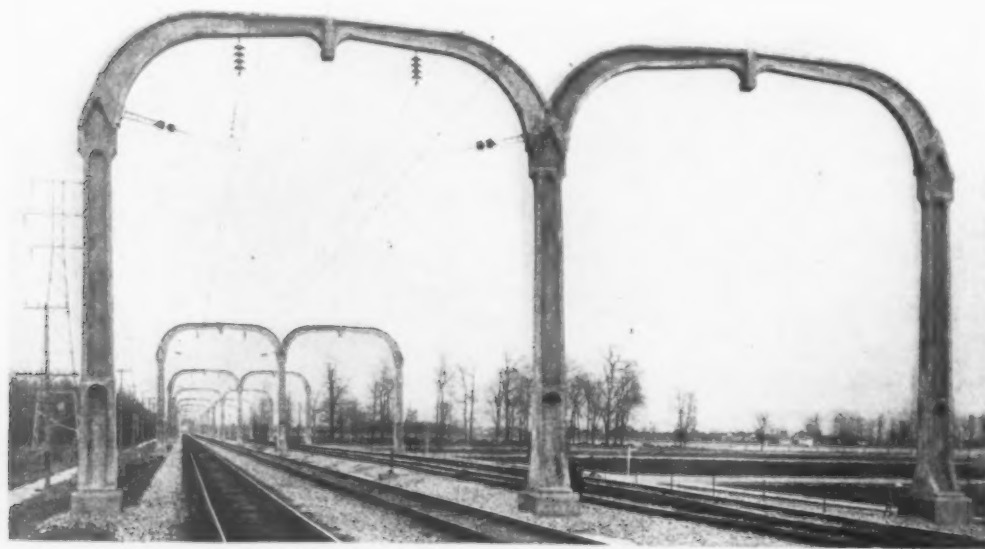
CONCRETE ARCHES ON RAILROAD

Detroit, Toledo & Ironton Spans 17 Miles of Track as Preliminary to Electrification Project

The Detroit, Toledo & Ironton Railroad, the Henry Ford road, has recently completed reinforced concrete arches which span its tracks at intervals of approximately 300 ft. for 17 miles, this being a step toward the electrification of the D. T. & I. Pits 10 ft. long,

ton. Wooden forms or molds fitted around the steel reinforcement were specially made and used at each pit. With the steel reinforcing wired and in place on the floor of the pit, and the wooden forms fastened around, the foundation structure was ready for the pouring of concrete.

The tops of the arches were poured and formed in the Fordson plant and were transported on flat cars and erected on the columns. Wherever there was contact between metals, as at the points where half-arches and columns were joined by bolting together the bare steel reinforcing end plates, a coating of tar pitch was



Reinforced Concrete Arches Spanning the Tracks of the Detroit, Toledo & Ironton Railroad Have Been Completed Over a Distance of 17 Miles

8 ft. wide and 8 ft. deep were dug for the foundation supports for the arches and at the bottom of each pit a 2-in. hole was bored to a further depth of 8 ft. for the purpose of holding an 1½-in. galvanized iron ground pipe.

This pipe was connected at the upper end to a bronze terminal, which in turn held one end of a ½-in. stranded copper cable. This cable was attached at the other end to another terminal near the upper part of the pit, and this latter terminal was affixed to the base of a center one of six 2-in. anchor bolts 36 in. long, which projected upward and served to fasten the trolley tower to the completed foundation. The anchor bolt nut bore against the casting in the column to which were welded the reinforcing rods, thus completing connections. Terminals, cable and bolts were held in place in the pits by wire and templates.

Four 1-in. steel U bars spliced to top reinforcing bars to form four rectangular pieces approximately 3½ x 6 ft. were used for reinforcement in each foundation. These pieces were wired together, forming a steel skele-

tion. Grout was used to fill the 2-in. spaces left at the trolley tower bases and was also applied over all other joints, concealing the bolts and nuts and making completely covered concrete structures fairly impervious to the elements.

First-Aid Rooms in Small Plants

Another of the helpful pamphlets issued by the Policyholders' Service Bureau of the Metropolitan Life Insurance Co., New York, is devoted to first-aid rooms in small plants and is listed as Industrial Health Series No. 1. It gives information as to what is expected of a first-aid room, the extent and character of service likely to be rendered, the type and training of the person in charge, location, size and equipment of room, and, in particular, tells what not to do. The first-aid room is not a complete hospital.

The South's Large Part in Exports

Nearly a Third of Total Goes Through Its Ports—
Steel Movement Runs Into Millions of Dollars
—Why Manufactures Should Grow

BY GEORGE GORDON CRAWFORD*

THE South has always taken an important part in the export of American products. It exports more than half of the agricultural exports of the United States. It ships through its ports about a third of the total exports of this country. The South contains about a third of the area of the United States. In it live about a third of the people. In wealth the South has only about one-fifth of the wealth of the United States.

In view of the statements above, why does the South possess such a proportionately small amount of the wealth of the United States? The answer is given in the next statement.

It manufactures only one-sixth of the manufactured products.

In 1925 more than 27 per cent of the total exports of the United States were raw and manufactured cotton, of which only about 5 per cent was manufactured and only a fraction of this manufactured in the South.

The exports from the South are principally raw materials, because the manufacture of finished products in the South is much too small to supply the domestic requirements of its territory, and as a consequence the exports of manufactured products are relatively small in volume and in value.

Mass Production the Basis of Exports

The domestic market of the United States is of such vast extent that of the total exportable goods produced in the United States, the percentage exported is comparatively small. No other nation enjoys such a large domestic market, providing as it does a splendid opportunity for mass production. Mass production enables the United States to manufacture many articles cheap enough to export them in competition with other nations, which do not have so high a standard of wages and living as labor enjoys in this country. Manufacture for domestic market is therefore such a potent factor in permitting articles to be produced cheap enough to export them that it is not feasible to discuss the subject of "The South's Part in American Exports" intelligently without referring to the domestic market and the situation which underlies the South's part in American exports.

As a result of the devastating effects of the Civil War, the South was barren of capital and credit during the period of industrial growth in other sections of this country and in other countries, which rapidly followed the invention of the steam engine.

Coal as a source of power for manufacturing, proximity to seaports, the talent of her people for seafaring and trade, made England a powerful factor in the export trade. Though a large importer of raw materials, the profits from the exports of manufactured products, together with the profits of the by-products of these exports, such as shipping, insurance and banking, made England foremost in wealth of nations.

South's Development Held Back

During the same period of expansion of industry, the Northern States, with capital and credit at their disposal, expanded manufacturing plants to supply the needs of the Northern, Western and Southern States and to take an important part in the export of manufactured articles. The profits from the sale of manufactured articles, and the by-products of the trade in them accruing to the Northern States from freight

rates, insurance and banking, increased their wealth to enormous amounts.

During this period the South, by reason of lack of capital, was reduced to the necessity of confining her activity largely to the pursuits of agriculture, lumbering and other primitive activities, yielding large tonnage, large values, but small profits.

In 1860 the Southern States owned 39.2 per cent of the wealth of the United States; in 1870, only 14.6 per cent; in 1922, 22.2 per cent. Banking resources of National and State banks in the South increased from less than 4 per cent of the total of the United States in 1900 to over 8 per cent in 1924. While the South is increasing its proportionate share of the wealth of the United States, it has not yet secured the percentage of the wealth of the whole country which it had prior to the Civil War, and is still short of the capital required to take a profitable part in the American export trade.

Excess Raw Material Exports Increase Imports

The development of manufacture in the Southern States is gaining impetus each year, but still is far behind a production of manufactured products required for domestic use, much less for export.

The preponderance of the exports of raw materials from the South over manufactured products is not a good thing for the South, nor for the nation. It has involved the use of energy and capital in transporting over unnecessary distances, to foreign countries and other sections, raw materials produced within the Southern States, and the shipment of finished products back to the points from which the raw materials came; the same amount of capital invested in manufacturing in the Southern States as is used in the transportation, insurance and banking, in connection with exports, would go far toward manufacturing these raw materials near Southern points of consumption.

The export of a large volume of raw materials from the South actually hinders the growth of manufacturing in the South by exposing it to severe competition. For instance, the freight rates on steel products from England and Belgium to Galveston are \$3.55 per ton; from Birmingham to the same point, by rail, it is \$12.77 per ton. These low rates, which facilitate the importation of foreign steel into the South are made possible by large exports of raw cotton from the South. The ships, rather than come in ballast, make low freight rates on manufactured products, from European to Southern ports. This situation does not encourage the growth of manufacturing in the South.

Manufacturing Should Grow

Are the conditions in the South favorable for the growth of manufacture, so that it can hope to substitute exports of manufactured products for exports of raw materials? Yes. They are as follows:

- Proximity to raw materials.
- Proximity to markets, both domestic and export.
- Cheap power.
- Good labor supply.
- Healthful climate.
- Low taxes.

There are raw material resources of vast extent in coal, iron ore, fluxes, copper, bauxite, sulphur, phosphate, petroleum, forest and agricultural products, etc.

Comparative freight rates from typical centers of manufacture in the North and South show that the latter can reach approximately a third of the people

*President Tennessee Coal, Iron & Railroad Co., Birmingham. Mr. Crawford made this address at the National Foreign Trade Convention at Charleston, S. C., April 30.

of the United States at freight rates equal to or lower than Northern centers. Considering the freight rates on the assemblage of raw materials and the freight rates on the delivery of the finished products manufactured from them, to seaports, the South has a very considerable advantage in freight rates for export.

Cheap Power Distribution

The South contains a large area of high plateaus and mountains with copious rainfall, which makes possible production of hydroelectric power, close to coal seams, which permit the operation of stand-by steam plants during the low-water period from coal located at or near coal mines, with no, or negligible, freight on the coal used for power purposes. This unique situation permits the use of the power produced, both by water and stand-by steam plants, to be distributed over the same distributing system, thus increasing the load factor on the distributing system, the most expensive part of power installation.

These elevated plateaus are generally located within a distance of the coastal plains and river valleys well within the economic range of distribution of power, so that this cheaply produced power is, or will be, delivered over a large part of the South.

The power can be produced cheaply and distributed cheaply; it can be delivered to the points where the labor supply is good, namely, the villages and small towns, near which a supply of labor exists, engaged principally in agriculture and producing such a large volume of agricultural products that the prices received for the same do not yield to those engaged in agriculture a reasonably good standard of living.

Good Labor Conditions and Climate

The population of the Southern States is approximately 75 per cent white and 25 per cent negroes, both easily trained and efficient in manufacturing when trained. It is found that this population turns eagerly to manufacturing when afforded the opportunity, in order to procure a higher standard of living than has hitherto been possible in agricultural pursuits. If manufacturing becomes proportionately balanced with agriculture, the profits of agriculture will increase, due to operation of the law of supply and demand. The South is today the greatest, best and cheapest labor market in the United States.

In addition to the possession of raw materials, proximity to markets, cheap power, and good labor conditions, the fifth favorable factor for manufacture in the South is a pleasant and healthful climate. The greatest mortality from disease in the South has been from malaria, and this has been demonstrated to be a controllable disease, not only on the Panama Canal, but in sections of the South where malaria has been prevalent. One large industrial company, by drainage and mosquito control, reduced malarial fever cases in an industrial population of something near 100,000, from 4840 cases of malaria per annum to 14 cases per annum, at a comparatively small cost. The greatest mortality in Northern States has been from pulmonary diseases, largely pneumonia and tuberculosis, which are not easily controllable, and then only at great expense.

The Southern climate is a good all-the-year-round climate and favorable for manufacturing, as is being demonstrated. The cost of rentals, fuels and clothing is less than in colder climates.

The taxes in the Southern States are generally low.

Gains in Manufacture

That the six important advantages which have been enumerated above—raw materials, proximity to markets, cheap power well distributed, labor, climate and low taxes—are having practical effect is reflected statistically in two reliable ways:

1. By the consumption and manufacture of local raw materials.

2. By the growth of power consumption.

In 1900 the consumption of cotton by Southern mills was approximately 1,600,000 bales. Twenty years later the consumption of cotton by the Southern mills was about 3,750,000 bales, or 233 per cent of the 1900 rate.

Five years later, in 1925, the Southern mills took nearly 4,500,000 bales, more than twice the amount taken by cotton mills in the United States, outside of the South, and 37.1 per cent of the average annual American cotton crop for the last five years; and 280 per cent of the amount of cotton manufactured by Southern mills in 1900.

There seems little doubt that increase in the construction of new cotton mills in the South will continue in view of the many advantages.

In the State of Alabama, the leading Southern State in the manufacture of steel products, the production of steel in 1924 was 243 per cent of the amount made in 1914. During this 10-year period, the Tennessee, Coal, Iron & Railroad Co., the largest producer of steel products in the State of Alabama, exported 1,659,257 net tons of these products.

Great Increase in Electric Power Consumption

A tremendous growth in the production and distribution of electric power has occurred. The total electric energy supplied by public utility plants in five Southern States in 1925 was approximately 2470 per cent of the amount supplied in 1912. It is estimated that in another ten years the electrical needs of Alabama alone will be 5800 per cent of the amount supplied in 1912.

The export trade is of inestimable value to a new industry in supplementing the domestic market in providing a good load factor, so as to keep costs down through mass production. No matter how large the general market may be for a product, for illustration, steel, the infinite variety of sizes in which steel is required restricts a new industry, during the early period of its growth, to the marketing of only such sizes as it has mills to roll, and the domestic market may not furnish a volume of business large enough to keep the mills rolling these particular sizes busy. Then the export trade is appreciated.

Tennessee Company's Exports Nearly Seven Millions a Year

A large steel manufacturing company in the South, which for years has been constantly increasing the variety of its product, has found it desirable to export steel products, to the extent of six and three-quarter million dollars annually, for the last five years, in order to secure a better load factor on its mills, so as to keep costs down through mass production.

The 1925 export cargo tonnage of the Southern States was 28.6 per cent greater than the 1924 export total and this advance was participated in by every one of those States. This showing is noteworthy in view of the fact that while these Southern States increased their foreign traffic 3,700,000 gross tons, an advance of 14 per cent over their 1924 activities, the combined foreign traffic of all other States engaged in that trade declined 2,450,000 gross tons, or nearly 4 per cent.

In order for the South to take part in the American export trade which its resources justify, it needs only a reasonable share of the capital which has hitherto been attracted to other sections. The Southern people have it in their power to increase or to retard the rate of flow of the stream of capital which is now setting strongly in their direction. Continuance of the present tendency to welcome capital and to treat it fairly will bring capital in ever-increasing volume.

Electric welded steel pipe will be used in the fabrication and laying of a pipe line 90 miles in length which will supply Oakland, Cal., with water. The contract for this pipe line has been placed with the Steel Tank & Pipe Co., West Berkley, Cal. The pipe sections, 30 ft. long, will be up to 65 in. in diameter and will vary in thickness from $\frac{3}{8}$ to $\frac{5}{8}$ in. The pipe will be fabricated in the shop and the ends joined by hand welding after the pipe is laid in the trenches. Eight specially designed automatic welding machines built by the Lincoln Electric Co., Cleveland, have been installed in the plant of the Steel Tank & Pipe Co.



Broadly Trained Mechanics Needed

Training Under Actual Shop Conditions Preferable,
Says Machine Tool Builder in Discussing
Apprenticeship

HAS mass production, which has developed the operator trained to single operations, eliminated the necessity for skilled workmen who can turn their hands to any job that they may be called upon to do?

This question was answered in the negative by W. A. Viall, vice-president of the Brown & Sharpe Mfg. Co., in a paper on "Has the Need for Apprenticeship Passed?" which was presented at the opening session, May 3, of the Providence meeting of the American Society of Mechanical Engineers, being held at the Providence-Biltmore Hotel, Providence, May 3-7.

Mr. Viall's paper, which was received with evident interest, also stressed the desirability of training under actual shop conditions, and outlined the methods of apprentice-training employed by his company for many years.

In speaking of the need for skilled workmen who can turn their hands to any operation, Mr. Viall said: "The intensive development of the 'Iron Man' which is keeping chained to its side one-operation operatives, has called forth a demand for leadership and guidance. Courses of study and intensive training may give an insight into the subject, but a real leader must have a thorough practical knowledge that can be obtained only through doing the job. . . . As technical schools developed they elaborated their book teaching with shop practice, with the expectation that it would meet very largely the growing need for trained leaders.

"I believe that school training, when successful, prepares a man to obtain the advantages of shop training in a much shorter time than is apt to be the case with an untrained mind. I firmly believe, however, that no matter how well the school shop training is carried out, it can in no way take the place of actual shop conditions."

Much Attention Given to Training of Apprentices

The founders of the Brown & Sharpe company, it was said, felt the value of apprenticeship, brought up under it as they were, and its principles have been carried through in the training of their sons and grandsons. With such a background, it was natural that as much attention should be paid to the training of apprentices as was paid to other important matters. The training was never considered as a minor question that would take care of itself. In the earlier days the young men received instruction in a more or less systematic

manner. Placed under foremen, they were given tasks that were intended to give them all-around training. Later it was decided that the training given should be more systematic. Work was not only laid out for the apprentice, as before, but a supervisor was appointed to see that these plans were carried out.

The selection of a proper supervisor was stressed as of primary importance. He must be not only a thoroughly trained mechanic, but also a man of character, capable of handling his job sympathetically, and he must be able to keep the boys enthusiastically interested in their work. This, it was pointed out, is not an easy task, but no part of a properly administered apprenticeship system is easy.

Applicant Taken On Three Months' Probation

To be eligible for a machinist apprentice, the boy must be not less than 16 nor more than 18 years of age. He must have a good common school education and possess a sufficient degree of physical development to fit him for the trade. Only boys of good habits, and whose sight and hearing are unimpaired, are accepted. Boys who are tired of school and are simply looking for a job in order to escape school work are not favored. It was stressed as important that applicants should be mechanically inclined. A preliminary examination is ordinarily required to show how much knowledge the boy has of simple mathematics.

If the boy is considered worth trying, he is taken on probation for three months, during which period his general fitness for the work is observed. If at the end of the probation period, the boy is thought to be satisfactory, he is indentured.

A copy of the indenture was included in the paper. As apprentices are trained in machine shop, drafting room and foundry, in core making and in special work on automatic screw machines, the terms of indenture vary somewhat. Each applicant is charged a fee, and in case the agreement, signed by the applicant and parent or guardian and the company, is broken, the money is not returned. On the fulfillment of the apprenticeship a bonus is paid.

It was said that although many employers consider indenture not wise, that the Brown & Sharpe company believes it is advisable and oftentimes necessary. Occasionally a young man will break away, despite anything that can be done, and forfeit his fee and his prospective bonus. But such cases are rare. It was

said that it is not a bad idea to inculcate in the minds of the young a regard for a contract obligation.

The number of weeks spent in various shop operations were given, and it was to be noted that not only does the apprentice have to do with the manufacture and assembling but also with the operation of the various machines manufactured by the company. In addition to the shop work, there is classroom work, which necessitates two hours a week during the first two years and four hours a week during the last four years. Drafting-room apprentices take courses in the shop.

It was pointed out that one of the problems in connection with apprenticeship is to secure young men who are willing to undergo such training. Presenting the advantages of shop training to pupils of some of the high schools and technical schools was said to have succeeded in enlisting young men in the work.

"If the young people of today could appreciate what it means to have the training of mind and body that a well-disciplined course gives, the task of enlistment would not be as great as it now is," said Mr. Viall. "But unfortunately these things are frequently appreciated too late. I believe that an appeal to young men to avail themselves of these opportunities is not very effective when they see before them that they are to be merely machine workmen or tied down to a bench. Originally the plan of training contemplated making skilled workmen. But the problem has grown to be a much broader one than this. We are able to show that there are possibilities open to well-trained young men that are well worth their while." (A list of occupations of graduates from the company's apprenticeship courses showed that a large number are in executive and other responsible positions.)

Apprenticeship training, it was said, can be carried out by any company, whatever its size, if it will put some one who is fitted to spend some of his time looking after the training of young men.

In conclusion Mr. Viall said: "If manufacturers could fully appreciate not only the joy of achievement in their production and of their success measured by the money they make, but also the joy of taking and molding men who are to be leaders in the years to come, and deal with the question of a real apprenticeship, they would receive greater consideration at the hands of the people at large."

Indorse Mr. Viall's Apprenticeship Views

Indorsement of the principles and methods advocated by Mr. Viall was given by many in the discussion of his paper. The danger of a shortage of skilled labor was pointed out, and active measures in apprentice training were urged. Selection of the right kind of

young men to train was regarded by many as of primary importance. Graduate apprentices are the best material for foremen and other executives, it being emphasized that such executives must be skilled in the entire trade. One speaker held that in the mechanical industries every executive should have had apprentice training, and another speaker mentioned the large number of apprentice-trained executives in plants throughout the country as evidence of the high value of apprentice training. Cooperation of the smaller shops which cannot individually carry out an adequate course of training was also urged in the discussion, the plans in operation in Boston, Milwaukee and Moline, Ill., and other cities being given as examples of such cooperative effort.

Among those taking part in the general discussion were: J. C. Spence, Norton Co., Worcester; R. E. Flanders, manager Jones & Lamson Machine Co., Springfield, Vt.; Henry Buker, vice-president Brown & Sharpe Mfg. Co.; Charles L. Newcomb, manager Deane Works, Worthington Pump & Machinery Corporation, Holyoke, Mass.; L. S. Harding, Cambridge, Mass., and John Bath, president John Bath & Co., Worcester. The chairman of the session, which was held under the auspices of the A. S. M. E. committee on education and training for the industries, was C. R. Burt, general manager Pratt & Whitney Co., Hartford.

Proof that educating of workers in accident prevention was a good economic proposition was given by George E. Sanford, safety engineer General Electric Co., Schenectady, in a paper on "Essentials of a Safety Education." Mr. Sanford outlined a plan of accident prevention, inaugurated two years ago, wherein different departments of the plant compete against one another for cash and other prizes. Accidents have been materially reduced and money saved in compensation cost.

The conference plan of foreman training was advocated by Frank Cushman, chief, industrial education service, Federal Board for Vocational Education, Washington, in a paper on "Training for Foremanship." Because of Mr. Cushman's absence, his paper was read by G. A. Stetson, secretary of the meeting.

In regard to what the foreman needs in the way of education, it is stated in the paper that it is important to help the foreman in organizing what he already knows so that his reservoir of experience can be utilized to the greatest extent. He should also be helped to secure a better appreciation of his responsibilities as a member of a large organization; as a leader of men in his own department; as a unit in management; as an efficient supervisor of work, and as an instructor on the job.

Puddling Wage Rate Unchanged for May and June

YOUNGSTOWN, May 4.—At the bi-monthly settlement conducted April 30 in Warren, to determine the boiling rate in mid-Western mills for the May-June period, the average selling price of bar iron shipped by subscribing mills for the 60 days ending April 20 was disclosed at 2c. per lb. This average is unchanged from the price which was revealed two months previously, and tonnage rates of boilers and finishing hands continue without change therefore. The puddling rate with bar iron at 2c. is \$11.38 per ton. At the yearly wage conference between employers and workers in bar iron, sheet and tin mills, to be held at Atlantic City beginning May 24, puddlers will ask a flat rate of \$15 for boiling iron.

New Committees of Concrete Steel Institute

Among committees recently appointed by the board of directors of the Concrete Reinforcing Steel Institute are the following:

Executive Committee: Chairman, W. H. Pouch, Concrete Steel Co., New York; George E. Routh, Jr., Kalman Steel Co., Chicago; Gustave Kahn, Truscon Steel Co., Youngstown.

Committee on Foreign Steel: Chairman, D. B. Knowlton, Dudley Bar Co., Birmingham; W. W. Baker, Baker Warehouse, Philadelphia; H. L. Barker, Barker Steel Co., Boston; George L. Eastman, George L. Eastman Co., Los Angeles.

Committee on Grade of Steel and Standard Sizes: Chairman, A. E. Lindau, American System of Reinforcing, Chicago; J. F. Curley, Concrete Steel Co., New York; R. G. Falk, Badt-Falk Co., San Francisco; O. W. Irwin, Truscon Steel Co., Youngstown; W. S. Thomson, Kalman Steel Co., Chicago; Edward A. Tucker, Edward A. Tucker Co., Boston; William F. Zabriskie, Gabriel Steel Co., Detroit.

An order for 100,000 pressed steel wheels for an automobile interest has been received by the Youngstown Pressed Steel Co. of Warren, Ohio, a subsidiary of the Sharon Steel Hoop Co.

The annual convention of the American Electric Railway Association will be held at Cleveland, Oct. 4 to 8, inclusive.

To Resume Hearings on Pig Iron Rates

WASHINGTON, May 4.—Assistant Director of Traffic W. N. Brown, of the Interstate Commerce Commission, yesterday announced that further informal hearing concerning rates on pig iron from Troy, N. Y., and Boston to New England points would be held on Monday, May 10, beginning at 10 a. m.

A Plan of Educating Salesmen

How a Machinery Dealer Instructed His Men on Selling Points
Through Weekly Staff Conferences

BY G. T. AITKEN*

MACHINE tool dealers, in handling a large variety of machines and in representing a multitude of mill supply manufacturers, are confronted constantly with the necessity of urging their salesmen to acquire a thorough knowledge of the products which they are marketing.

When instructing his representatives the dealer may resort to sales meetings which can be held most conveniently on Saturdays. To manage these meetings so as to arouse enthusiasm and at the same time to have the men absorb a liberal amount of educational matter is a real achievement.

In one company with which I was formerly associated we asked each salesman in advance of a meeting to submit five questions about a particular machine and at the same time to answer them. As we had six salesmen we secured 30 questions, together with the salesmen's own answers. This material was sent on to the builder of the machine, who formulated what in his judgment were the proper replies to the questions. He was invited to send a representative to attend the next sales meeting, at which the merits and defects of his machine would be the subject for discussion.

*Fairbanks, Morse & Co., Indianapolis.

At the meeting the manager of the dealer's sales department read the questions of each salesman, giving the salesman's name. The factory representative then gave the salesman's answer as well as the factory's answer. The results were amazing, the men bringing out points that had been entirely overlooked by the factory as essential selling data.

The length of our first meeting attested to the interest shown by the salesmen. It started at nine in the morning, continued through lunch at the noon hour and was concluded at four in the afternoon. The same enthusiasm was engendered at succeeding meetings.

To vary the monotony of a set method of procedure for each weekly meeting we accepted the invitation of several builders nearby, whose products we sold, to hold our conference at their plants. Such occasions gave us the opportunity to make interesting demonstrations which would have been impossible at our own office.

So successful were the meetings that at the end of ten months we had attained our year's quota on 25 per cent of our machinery lines and had secured more business on 33 per cent of our supply lines than we had had in the entire previous year.

Milling Machine with Vertical Attachment and Power Feed Rotary Table

The Rockford Milling Machine Co., Rockford, Ill., is placing on the market its Rigidmil equipped with a vertical milling attachment and with a power feed rotary table.

A feature is that the rotary table is built in as a

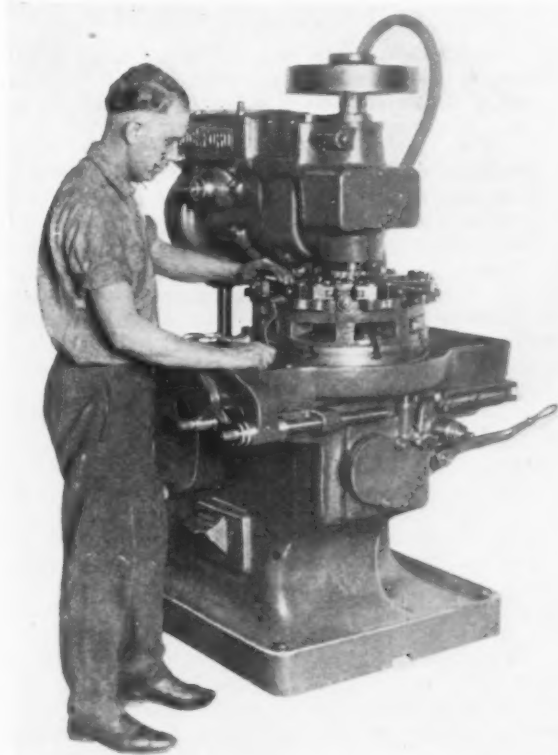
unit of the machine, the regular table of the Rigidmil being removed and the rotary table unit mounted in its place directly on the saddle slide. The bottom is planed to fit the regular table slide accurately and it is used for the adjustment of cutter depth. Other features are incorporated to provide for high production work.

The drive is taken from the same gear that is regularly splined to receive the table screw, which, in turn, through a train of gears and a clutch, drives the worm for the feed. Provision is made so that a range of feeds can be used that is satisfactory for the outer diameter of the table or for milling at a smaller diameter.

The worm is provided with ball and thrust bearings and is carried in eccentric bronze bushings, which are designed to provide adjustment for wear of the worm. The worm wheel is cast solid on the table, thus acting as a stiffening rib for the table. The table bearing is taken in three places—one at the surface outside of the worm wheel, another at a position slightly lower and inside of the worm wheel, and a third, a circular gib which is accurately fitted and scraped into position, which takes care of the radial duty and holds the table down. This arrangement permits adjustment for wear, which is done by scraping the proper amount from the upper surface of the gib. The worm and worm wheel are inclosed in a cored compartment and are submerged in a bath of grease. The table is lubricated by rollers in pockets.

The base of the table is made in two sizes, one of which is short, for work that is milled at the inner position, and the other long for work milled at the outer position. The purpose of the long base is to provide full bearing on the saddle slide. The base is made with a large oil pan, and has a screen through which the lubricant returns to the base, through the regular trough on the rear of the saddle slide. All gears are hardened, and all shafts that slide under power are made with hardened and ground integral splines and the gears broached from the solid to match.

The diameter of the rotary table is 17 in. The maximum and minimum distances from nose of spindle to top of table, vertical machine, are $9\frac{1}{2}$ in. and $2\frac{1}{2}$ in., respectively. The maximum endwise adjustment



The Rotary Table Is Built In as a Unit of the Machine. The vertical spindle attachment is mounted solidly on the regular spindle head and may be removed conveniently

with the long bed is 18 in., and with the short bed, 10 in.

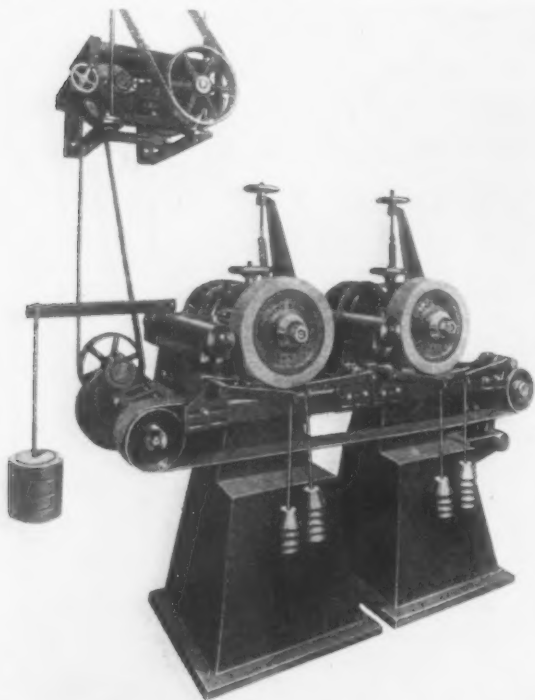
The vertical spindle attachment is mounted on the regular spindle head bolted to the arm in the upper position and clamped around the quill in the lower position. A bevel pinion is mounted on the regular machine spindle and the mating gear on the spindle of the attachment. The spindle of the attachment is identical in the nose and in general dimensions with the main spindle, and has a flywheel splined to the upper end for the elimination of the chatter. The spindle speed for the attachment is one-half that of the main spindle. This attachment is of rugged construction and can be removed conveniently to permit using the horizontal spindle.

Automatic Machine for Polishing Flat Pieces

Large increase of production in the polishing of flat stock is claimed for a new automatic machine, which is being placed on the market by the Divine Brothers Co., Utica, N. Y.

The machine is adapted for the polishing of a wide variety of work including flat bars and strip steel, or similar forms of other metals; flat surfaces of calculating machine and cash register parts, typewriter parts, builders' hardware, cabinet hardware and similar pieces. It is claimed that the machine eliminates the necessity for the use of skilled workmen usually employed for the hand polishing of many of these parts.

The principle of operation is simple. The material to be polished is placed on a feed belt which carries



Work Is Placed on the Feed Belt, Which Carries It Through the Polishing Wheels, and Is Polished Automatically

the work under a series of polishing wheels, where the entire process is completed mechanically. The machine is equipped with a variable-speed transmission which provides a range of feed belt speeds from 5 to 25 ft. per min.

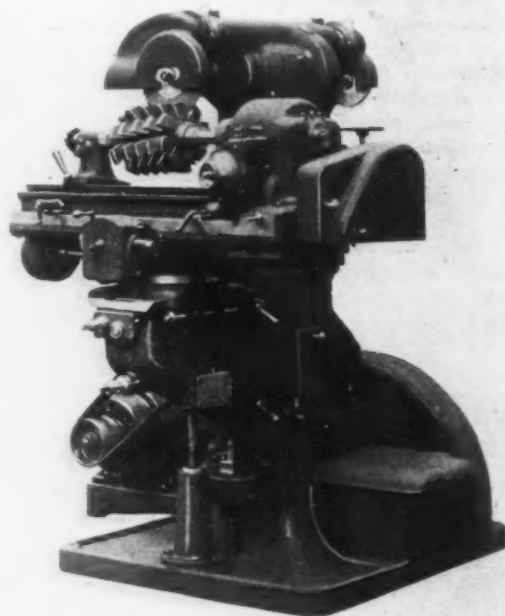
Material ranging from thin sheets to pieces of several inches in thickness may be polished on the machine, which is also built with various widths of feed to take pieces of stock from the narrowest up to 20 in. wide or more. Contact between the work and the polishing wheels is maintained to micrometer adjustment. The polishing wheels are both weight and spring balanced, which is said to provide mechanically

the proper delicacy of touch or feel required for polishing. Each polishing wheel is driven independently by its own motor.

The machine is built in units, each of which carries an independently operated polishing wheel. A number of units may be used in one battery to suit the required polishing process or the production required. Additional units may be grouped or added conveniently to equipment in operation, to take care of increased output.

Hob-Sharpening Machine Arranged for Full Automatic Operation

Full automatic operation is the outstanding feature of a new hob-sharpening machine which has been brought out by the Herman Pfauter Works, Chemnitz, Germany, and is being placed on the American market by the O. Zernickow Co., 15 Park Row, New York.



Automatic Setting of the Hob to the Grinding Wheel Is Stressed as Resulting in Removal of Uniform Amount of Material from All Teeth, Producing True Running Hobs

This machine, designated as the model FSS-A, follows in design the model FSS semi-automatic hob grinder described in THE IRON AGE of Dec. 31, 1925.

The machine is designed for sharpening tools with spiral flutes, from the smallest up to those 10% in. in diameter and 13% in. long, according to the nature of the tool and the diameter of the grinding spindle. In addition to general tools with spiral flutes, such as reamers and profile cutters, the machine is adapted for grinding tools of this type with straight flutes. A special attachment is available to permit grinding face mills up to 13% in. diameter.

The drive is through a single pulley from a counter-shaft or 3-hp. individual motor. From this pulley the drive is transmitted to the grinding wheel spindle and also to the table driving mechanism. All movements of the machine are automatic, including the longitudinal movements of the table, the indexing from one flute to another, and the setting of the hob to the grinding wheel after one complete revolution of the hob. With the longitudinal travel of the table the hob is revolved automatically according to the spiral of the flute. The maximum longitudinal travel of the table is 17% in., but stops permit varying the travel as desired up to the maximum.

The indexing of the hob, according to the number of flutes, is accomplished by means of change gears. The lead of the spiral is obtained by means of a separate change gear system. The automatic setting of the hob

to the grinding wheel can be regulated and disconnected if desired, and the setting, in the latter case, may be accomplished by hand. The indexing can also be done by hand. The grinding operation takes place during both the advance and return of the table. The table can be swiveled 45 deg. in either direction and adjusted $8\frac{1}{2}$ in. vertically. The size of the table is 48 x 9 $\frac{1}{2}$ in. The maximum diameter of the grinding wheel is 8 in.

It is stated that one operator can attend from three to four of the machines, or he can use the grinding wheel provided at the back of the machine column for sharpening other tools while hobs are being sharpened automatically at the front. As in the previous machine, the grinding dust is removed by means of a vacuum dust remover and deposited in a water tank. The grinding spindle is hardened and ground, and is mounted in adjustable phosphor bronze gearings. A wheel truing device is furnished for dressing the grinding wheel. All mechanisms of the machine are protected from injury by grinding dust and grit. The specifications follow those of the model FSS machine previously described. The weight net is 2310 lb. and the floor space required 67 x 71 in.

Portable Pipe Threading Machine for Oil Field Work

Elimination of the waste of much pipe and casing is claimed for the portable pipe threading machine, here illustrated, which is used by the Pure Oil Co., Columbus, Ohio.

The outfit is made up of an 8-in. pipe threading and cutting machine of the Landis Machine Co., Waynesboro, and a Landis chaser grinder, both of which are mounted on a special trailer built by the Highway Trailer Co., Edgerton, Wis. The pipe threading and cutting machine is equipped with all necessary chasers for cutting the various diameters, pitches and tapers of threads found on pipe and casing used in the mid-continent oil field. The chaser grinder was supplied without the usual pedestal, and is mounted on the front part of the trailer, beside the Fordson tractor engine.

The illustration shows the operating side of the 8-in. Landis pipe machine, to the right of which, in front of the tractor, may be seen the chaser grinder. In addition to the attachment for grinding the chasers, the grinder also carries a plain wheel and small tool rest which can be used for miscellaneous grinding.

The machines are driven by the Fordson tractor engine on the front part of the trailer from a pulley by belt to the line shaft, which is supported along the lower side of the trailer on the side opposite that shown in the illustration. A pulley on the line shaft, near the rear wheels of the trailer, is belted to another pulley on the pipe machine. The pipe machine is provided with a gear box through which speed changes are made. A pulley near the front wheel of the trailer is belted to the grinding unit, the belt extending under the

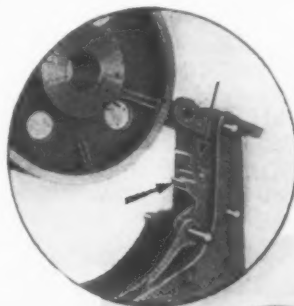
trailer to chaser grinder. When removing the pipe from the machine or when making up and breaking flanges the operator stands on the platform at the rear of the trailer. The chuck of the machine has a universal adjustment and is self-centering to the pipe. Flange grips are also furnished.

It is stated that in addition to oil-field work, this portable outfit is adapted for maintenance work in large plants, and especially in plants scattered over a wide area.

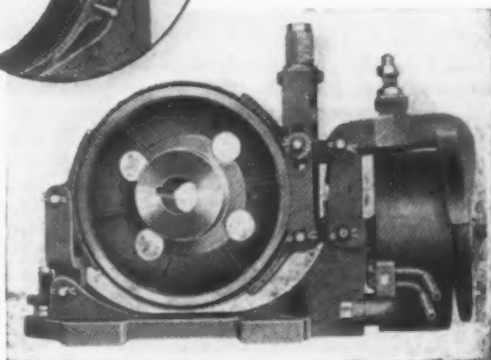
Magnetic Brake for Use with Crane Hoist Motors

A new design of magnetic brake adapted for use with crane hoist motors, elevator motors, skip hoists, etc., has been brought out by the Clark Controller Co., Cleveland, being known as its "Three C" brake.

A feature of this brake is the method of operating

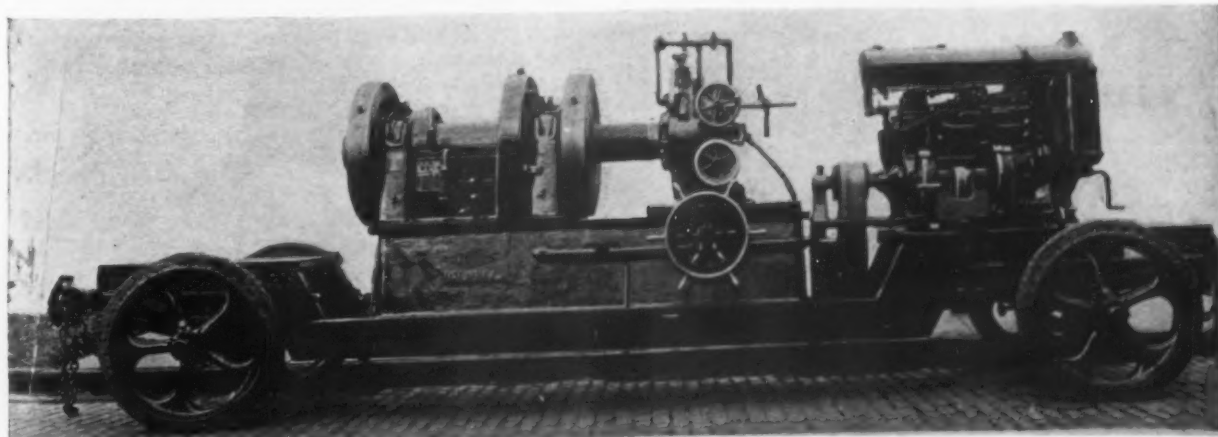


The Method of Operating the Two Friction Bands Is a Feature. Approximately 90 per cent of brake wheel surface is utilized



the two friction bands, which is shown in the insert illustration. The upper gear sector anchors one end of the upper friction band and the lower gear sector anchors one end of the lower friction band. The arrangement is such that the armature of the brake operates the upper gear sector, which in turn operates the lower gear sector, so that both halves of the brake band are moved in or out simultaneously, and an equal distance. The view of the brake assembled also shows the rear yoke, which is arranged to back away from the wheel when the brake is released, so that by utilizing the three points in the split friction band a full and clear release is obtained all the way around the wheel.

Some of the advantages claimed for this brake are



The Pipe Threading and Cutting Machine Is Driven From a Line Shaft at the Rear of the Machine. Chasers for cutting pipe of various diameters, pitches and tapers of thread are part of the equipment and a chaser grinder is mounted beside the Fordson tractor engine

that it utilizes approximately 90 per cent of the brake wheel surface, it has no side drag or hammer blow effect and the two principal adjustments, the air gap adjustment and the pressure adjustment, are accessible.

This type of brake is adaptable to intermittent shafts on crane hoists. It can also be arranged for solenoid operation instead of the contactor type of magnet coil and, in addition, can be arranged for foot pedal operation for the bridge motion of an electric traveling crane. Six standard sizes of the brake are available.

Small Welding Torch

A small welding torch for work not requiring the usual standard torch is being added to the line of the Alexander Milburn Co., Baltimore. The new torch, designated as the type J-Jr., is 18 in. long and weighs 25 oz. It uses the same tips as are supplied with the standard larger torches and is adaptable to a wide range of welding. It uses low and comparatively equal pressures of oxygen and acetylene.

Supermixing of the gases through a standardized system of multiple mixing is stressed as assuring complete intermixing of the gases and a uniform flame. The seats of the tips are flat, with annular grooves coinciding with those in the head, the gas passages entering through the annular grooves or rings which separate the gases. The construction of these seating surfaces allow lateral expansion of torch head and tip without distortion, and the seats may be refaced conveniently.

The torch is of simple construction, and all parts are accessible. The head is at an angle of $67\frac{1}{2}$ deg. which is stressed as permitting a natural position in operating the torch, utilizes the heat to best advantage and protects the operator's hands.

Electric Hoist for Use with Limited Headroom

Simplicity of design and accessibility of parts are general features of the "Standart-ized Hi-Lift" electric hoist shown in the accompanying illustrations, which is being built by the Northern Engineering Works, 210 Chene Street, Detroit. As its name indicates the machine is designed to bring the load hook up close to the beam on which the hoist runs or to which it is attached, which feature adapts it for use where space is limited, and where building clearances might otherwise prohibit.

The machine is available at present in capacities from 1 to 4 tons, inclusive, and will be built in capacities up to 8 tons. The clearance is 17 in. and the standard hook lift is 20 ft. A feature of design is the arrangement of the gearing, which may be noted

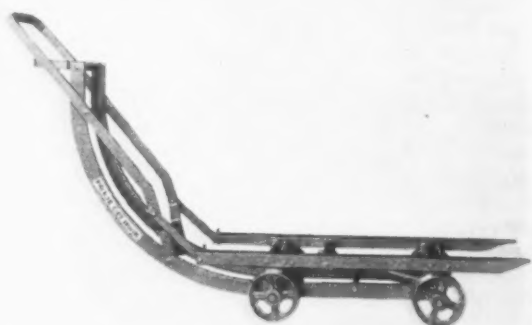
from the illustration. Gears and pinions are of hammered steel, case hardened, are entirely inclosed and operate in a bath of lubricant. Timken roller bearings are used throughout. The frame is a heavy one-piece casting. The drum is grooved and both the drum and sheaves are of large diameter and machine finished. Any standard hoist motor may be applied and the machine may be equipped with either single or variable-speed type of controller. A 4-hp. motor is employed for the 1, 2 and 3-ton hoists, the full-load hoisting speed of which is 60, 30 and 20 ft. per min. respectively. A shoe-type pincher brake is provided on the motor and a mechanical load brake in the hoisting gear train. Upper and lower safety limit stops are provided.

The hoist can be furnished with geared or plain I-beam trolley, or without trolley for stationary mounting. For the latter, two upper suspension hooks are furnished. The length of the machine is $39\frac{1}{2}$ in. over all, and the width 34 in.

Lift Truck for Loads Up to 2000 Lb.

Simplicity of design and operation are features of the lift truck here illustrated, which is being placed on the market by the Arcade Mfg. Co., Freeport, Ill. It is intended for handling loads up to 2000 lb.

The platform of the truck may be elevated from its lowest position to a height of 1 $\frac{1}{8}$ in. With the platform lowered, by raising the handle to its upright



The Platform May Be Elevated 1 $\frac{1}{8}$ In. Provision is made to prevent slipping of load and for lowering smoothly

position, the truck is slid under the skid. The operator then grasps the handle with both hands, bracing his foot on a cross piece at the base of the handle and with a steady pull lifts the load. Slip or lowering of the load is prevented by a positive gravity lock and a hydraulic release check is provided so that the load may be lowered smoothly.

The length of the truck is 62 in. over all, and the



Details Show the Gearing Train and the Simple Arrangement for Assembling. Gears and pinions operate in an oil bath

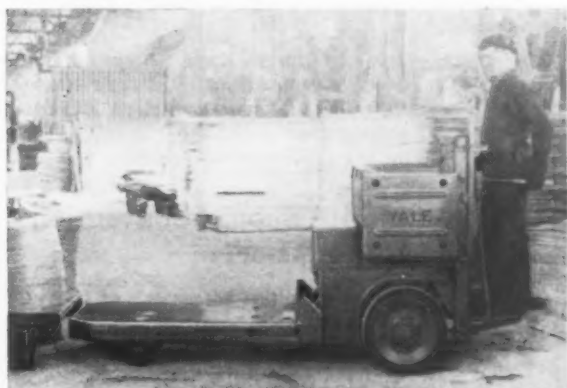
width 17 in. The height of the platform when elevated is 7½ in. The wheels are 6 in. in diameter and 1½ in. wide. The wheel base is 19 in. The weight of the truck is 100 lb. net.

New Elevating Platform Truck

A new elevating platform truck, designated as the K23E, for handling heavy loads, has been added to the line of the Yale & Towne Mfg. Co., Stamford, Conn. The machine is similar in many features to the company's K22 machine, but is not of the high-lift type.

Short turning radius and the narrow width permit the machine to be driven in and out of box cars or narrow aisles. Hardened steel steering pivots with bronze bushings and the high-pressure lubricating system employed are stressed as making steering easy, even when carrying full loads. Ease of steering is also attributed to large tires, both front and rear, and to proper distribution of load on the tires.

Frame members are of pressed steel and the elevating links, which support the platform, are wide and heavy. The triple spur-gear elevating mechanism is essentially the same used in the K22 truck, making the major replacement parts interchangeable between these models. The elevating platform is raised by means of two large eccentrics mounted on the hoist unit shaft, which draw the platform forward and upward on the platform links. Mechanical upper and lower limit stops are provided to assure simple and safe operation of the lifting mechanism. As in other of the Yale "K" series of trucks, the spur-gear unit power axle, a sub-assembly, is incorporated, and is interchangeable with that used in all of the models. The gears are totally inclosed, and run in oil. They are of alloy steel and mounted on ball bearings. The universal joints of the unit are inclosed in leather boots packed



Narrow Width and Short Turning Radius Permit of Using the Machine in Narrow Aisles and Box Cars

with grease, which protects them from dirt and water.

The majority of parts, units and sub-assemblies of the new elevating platform truck are standard and interchangeable with those of all other models in the K series, this interchangeability being stressed as permitting economies in the manufacture of the trucks.

New Tinning and Soldering Compound

A new tinning and soldering compound has been put on the market by a British company, the Soldo Co., Sicilian House, Southampton Row, London. The compound, which is called Soldo, is non-acid and consists of a powder containing a combination of fluxes and metal. It is intended for soldering all metals, except aluminum and low grade cast iron, even when they are rusty, corroded, greasy, painted or enamelled. According to a report by the National Physical Laboratory, the inter-penetration obtained is considerably greater than that obtained by any other method, and renders the product of value in the tinning and retinning of bearings. It is stated also that the new compound will coat metals and alloys hitherto difficult or impossible to treat effectively with tin.

The Penetrometer—New Device for Testing Steel

A new device for testing iron and steel has been designed and developed in the past few years and will soon be put on the market by the Steel Penetrometer Co., 1910 Highland Avenue, Detroit. It is an electrical apparatus which makes use of the varying degrees of alternating magnetic flux penetration of soft, hard or heat-treated steel or iron. It is stated that the test consumes but a second of time, that it is reliable and readily lends itself to the testing of large numbers of pieces, it being capable of making 100 per cent inspection tests rather than the usual laboratory sample test. The test, of course, is non-destructive of the material tested.

An important feature announced is the depth of gage, enabling the operator to tell at a glance at what depth the test is being conducted. Tests are made on case hardening pieces with the hardness of case, the hardness of core and the depth of case in thousandths of an inch read directly from the dials of the instrument. It is stated that die blocks can be inspected by this method, giving the degree of hardness at varying depths, with the hardness readings readily comparable with Brinell, scleroscope and Rockwell hardness numbers.

Adopts High-Speed Steel for Machine Knives

Machine knives of a high-speed steel which is said to combine hardness with toughness to an unusual degree are being placed on the market by Henry Disston & Sons, Inc., Philadelphia. This steel is claimed to provide a cutting edge that will retain its sharpness and at the same time withstand hard service. In addition to being used for the company's A-1 machine knives, this steel is employed also in the company's Lock-Weld inlaid planer knife, in which a section of the new high-speed tool steel is inlaid in a carbon steel back. The inlaid piece is of the same thickness clear back to the slots, which permits the cutting face of the knife to be ground away in repeated sharpenings.

Steel Furniture Sales Remain High

Steel furniture orders in March at \$2,289,276 brought the total for the first quarter to \$7,214,039, a gain of 16 per cent over the \$6,205,425 of last year. The March figure is slightly higher than that of February, but well below January's large total. It is, however, larger than any of the first three months of 1925. Shipments in March exceeded orders by 4½ per cent, bringing the total for the three months to \$7,006,039.

Steel shelving orders in March amounted to \$583,701, a drop from the \$656,367 of February. This item, also, is running ahead of last year, the first quarter's totals having been \$1,667,917 in 1925, against \$1,822,084 in 1926.

The practicability of using 1-in. steel instead of 1½-in. steel for rock drilling is the subject of a report issued by the Bureau of Mines, Department of Commerce, Washington, the report having been prepared by C. R. Forbes, consulting mining engineer. Tests were carried on for four months and although they indicated the possibility of using 1-in. steel successfully, they did not, the report says, indicate that such a change would be desirable.

The Jones & Lamson Machine Co., Springfield, Vt., is adding to its line of Hartness high-speed series die heads a new size, designated as the No. 7-H, which has a capacity of ¾ to 2 in. As in other die heads of the company's high-speed series, the new tool is hardened throughout and ground on all essential dimensions. It utilizes chasers which are ground and lapped in the thread.

Technical Program for Refractories Annual Meeting

Technical papers to be presented at the annual meeting of the American Refractories Institute at the Bellevue-Stratford Hotel, Philadelphia, on May 12, beginning at 10 a. m., daylight saving time, include:

"Service Conditions in Open-Hearth Furnaces as Affecting the Life of Refractories," by F. W. Schroeder, assistant chemist, United States Bureau of Mines, Pittsburgh.

"The Refractories Industry in New Jersey," by G. H. Brown, head of the Ceramics Department, Rutgers College, New Brunswick, N. J.

"Mullite Refractories," by M. L. Freed, research fellow, United States Bureau of Standards, Washington.

"Industrial Research," by Dr. E. R. Weidlein, director, Mellon Institute of Industrial Research, Pittsburgh.

"The Study and Development of Tests for Fire Brick with Special Reference to Spalling," by S. M. Phelps, fellow, Refractories Fellowship, Mellon Institute of Industrial Research, Pittsburgh.

"Permeability as a Measure of the Uniformity of Fire Brick," by Dr. A. E. R. Westman, research fellow, University of Illinois, Urbana, Ill. Dr. Westman will also discuss investigations being conducted on checker brick for water-gas sets.

Beside these papers, arrangements also are being made to have one or two nationally prominent speakers present to talk on subjects of general interest. Announcement of these speakers will be made later. Invitations to attend this meeting are extended to all who are interested in the program, regardless of membership in the organization. Miss Dorothy A. Texter, 2202 Oliver Building, Pittsburgh, is secretary of the Institute.

Large Reservations for Steel Treaters' Chicago Exhibition

Prospects are exceedingly favorable for a very large exhibition at the Eighth National Steel and Machine Tool Exhibition to be held by the American Society for Steel Treating in Chicago the week of Sept. 20. According to a communication sent out to exhibitors, there have been listed to date 285 exhibitors as compared with 181 for the corresponding exhibition last year in Cleveland. In floor space 76,000 sq. ft. has been reserved thus far as compared with 45,000 last year and the estimated attendance is placed at 75,000 as against 43,000 at the Cleveland show.

The Society of Automotive Engineers has decided to hold its production meeting in Chicago the same week as the convention of the steel treaters and the secretary of the American Society of Mechanical Engineers states that the council has authorized the society's participation in the Chicago convention and that the machine shop practice division and the Chicago local section are to prepare and present a two or three-day program.

Specifications for Cast Iron Pipe and Special Castings

The organization meeting of the sectional committee on specifications for cast iron pipe and special castings, which has been formed under the auspices of the American Engineering Standards Committee to standardize such material for all uses, held at the Engineering Societies Building, New York, April 21 and 22, adopted a set of rules and agreed upon a subdivision of the work of the committee among three so-called technical committees.

The attendance embraced 22 members representing consumers, producers and general interests, and the meeting elected officers and committees. The new officers are: Chairman, Thomas H. Wiggin, consulting engineer, New York; vice-chairman, N. F. S. Russell, president United States Cast Iron Pipe & Foundry Co.; secretary, C. C. Simpson, Jr., general superin-

tendent of mains and services, Consolidated Gas Co., New York. The technical committees which have been appointed are: No. 1 on dimensions, No. 2 on metallurgy, processes and tests, and No. 3 on corrosion and protective coating.

Machine Tool Dealers to Meet

The Associated Machine Tool Dealers will hold its national convention at French Lick Springs Hotel, French Lick, Ind., May 20, 21 and 22. T. W. Carlisle, Strong, Carlisle & Hammond Co., Cleveland, is secretary.

Program for the Steel Institute's May Meeting

The twenty-ninth general meeting of the American Iron and Steel Institute will be held at the Hotel Commodore, New York, Friday, May 21. The following technical program has been arranged for the morning and afternoon sessions:

"Modern Steam Power Stations," by C. W. E. Clarke and D. L. Galusha, Dwight P. Robinson & Co., New York.

"Data Relating to Basic Open-Hearth Steel Practice," by A. N. Diehl, vice-president Carnegie Steel Co., Pittsburgh.

"Observations on Phosphorus in Wrought Iron Made by Different Puddling Processes," by Henry S. Rawdon and Samuel Epstein, Bureau of Standards, Washington.

"A Comparison Between Open-Hearth Furnaces of Various Sizes," by Stewart J. Cort, Bethlehem Steel Co., Bethlehem.

"Notes on Testing Coke," by William A. Haven, superintendent northern blast furnaces, Republic Iron & Steel Co., Youngstown.

"Reinforced Concrete," by A. E. Lindau, president American System of Reinforcing, Chicago.

The usual address by Judge E. H. Gary, chairman United States Steel Corporation, will precede the technical program. The banquet is scheduled for 7 p. m. daylight saving time.

To Speak at Mill Supply Convention in St. Louis

Among the speakers scheduled to appear at the joint convention of the American Supply and Machinery Manufacturers' Association and the Southern Supply and Machinery Dealers' Association in St. Louis on May 18, 19 and 20 are the following: Kirke H. Taylor, vice-president National Association of Purchasing Agents; John F. Hazen, general sales manager Pittsburgh Steel Co., Pittsburgh; S. A. Ellicson, Chicago Pulley & Shafting Co., Chicago; B. F. Brown, Sabine Supply Co., Orange, Tex.; David C. Jones, Lunkensheimer Co., Cincinnati; K. G. Merrill, M. B. Skinner Co., Chicago; T. F. Bailey, Banks-Miller Supply Co., Huntington, W. Va.; J. B. Crimmins, Mills & Lupton Supply Co., Chattanooga, Tenn.; J. L. Pitts, Brown-Roberts Hardware & Supply Co., Alexandria, La.; George Winship, Fulton Supply Co., Atlanta, Ga.; D. D. Peden, Peden Iron & Steel Co., Houston, Tex.; L. M. Harris, financial editor St. Louis *Globe-Democrat*; Merritt Lum, publisher *Factory*. N. A. Gladding, E. C. Atkins & Co., Indianapolis, will conduct the first joint session of the associations.

Affirms Shovel Simplification Program

WASHINGTON, May 4.—Manufacturers, distributors and users of hand shovels, at a conference at the Department of Commerce on Thursday of last week, affirmed a program of simplification which had been tentatively agreed upon at a previous conference held at Atlantic City. The conference in Washington went on record as favoring further work by the standardization committee toward elimination of surplus finishes.

NEW HEAD OF UNITED ALLOY

Harry Coulby Succeeds E. A. Langenbach as Chairman

HARRY COULBY, member of the firm of Pickands, Mather & Co., Cleveland, was elected chairman of the board and a member of the executive committee of the United Alloy Steel Corporation, Canton, Ohio, at the first meeting of the new board of directors held in Cleveland, April 28. He succeeded E. A. Langenbach, who resigned as chairman of the board and director at the annual meeting April 22, after selling a controlling interest in the company to Cyrus S. Eaton of Otis & Co., investment bankers of Cleveland, and associates. Mr. Coulby has been a director of the United company for several years. On the new executive committee with him are C. S. Eaton and J. O. Eaton, both elected directors at the recent annual meeting. J. O. Eaton, also with Otis & Co., is president of the Eaton Axle & Spring Co., Cleveland. Other officers of the United company were reelected. They are George H. Charls,



president; L. G. Pritz, vice-president, and C. W. Kreig, secretary-treasurer.

Mr. Coulby is president of the Interlake Steamship Co., operating the second largest fleet on the Great Lakes. This company is controlled by Pickands, Mather & Co., which manages the fleet. Mr. Coulby had been for many years president of the Steel Corporation subsidiary, the Pittsburgh Steamship Co., but resigned in 1924 to become chairman of the board. He gave up the latter position Jan. 1.

The selection of Mr. Coulby as chairman of the United Alloy board strengthens the Mather interests in that company and in the steel industry in northern Ohio with which they have long been prominently identified. Pickands, Mather & Co. in 1915 joined with the United Alloy Steel Corporation in forming the United Furnace Co., which built a blast furnace at the Canton plant. Each interest owned one-half the stock of the blast furnace company. In 1921 the furnace company was merged with the United Alloy Steel Corporation and Pickands, Mather & Co., took stock in the latter company in exchange for their furnace company stock. Jay C. McLaughlan, another member of the firm of Pickands, Mather & Co., is also a member of the United Alloy board. Samuel Mather, president of Pickands, Mather & Co., is a director of the United States Steel Corporation.

The Cleveland-Cliffs Iron Co., of which W. G. Mather is president, is closely allied with the Trumbull Steel Co., Warren, recently reorganized with C. S. Eaton as chairman of the board, the Trumbull Cliffs Furnace Co., Warren, the Otis Steel Co., Cleveland, and the Central Steel Co., Massillon.

Ryerson Acquires Reinforcing Bar Division of Penn Metal Co.

Joseph T. Ryerson & Son, Inc., has taken over the reinforcing bar division of the Penn Metal Co., Boston. It will immediately add to the sizes and tonnage carried. General sales offices have been opened at 677 Concord Avenue, Cambridge. A complete staff of engineers and draftsmen will estimate and quote on the steel reinforcing requirements of all types of construction.

For many years the Ryerson company has served the steel consuming interests of the East through its plants at Jersey City, and at Buffalo. Other territories are reached from its plants in Chicago, Detroit, St. Louis and Cincinnati.

William B. Read Added to Alan Wood Board of Directors

William B. Read, secretary and treasurer of the Edward G. Budd Mfg. Co., Philadelphia, manufacturer of steel automobile bodies, has been added to the board of directors of the Alan Wood Iron & Steel Co., Philadelphia. Other directors were reelected at a meeting of the Alan Wood company's stockholders on April 28. The following officers were elected: President, Ledyard Heckscher; vice-president and treasurer, Alan D. Wood; vice-president in charge of operations, H. C. Thomas; vice-president in charge of sales, C. O. Hadly; secretary and assistant treasurer, John W. Logan; assistant secretary, J. H. Woodhead.

Ford Motor Co. Dismantling Steel Ships at Chester, Pa.

The Ford Motor Co. is dismantling and scrapping some of the steel ships it recently bought from the United States Shipping Board. The work is being done at the Ford company's pier on the Delaware River adjacent to its plant at Chester, Pa. Some of the boats are being reconditioned for service and are being loaded with the steel scrap produced in the dismantling of other boats. The vessels that are considered unserviceable are being cut up by means of torches. The

scrap will be taken to Detroit and used in the steel plant of the Ford Motor Co.

A contract has been let by the Ford Motor Co. for the building of a 518-ft. pier at the Chester plant at a cost of about \$300,000. The pier will be 150 ft. wide and will permit the loading and unloading of ocean-going vessels at the assembly plant of the Ford company, for which contracts have been awarded.

Chamber of Commerce of United States Announces Convention Program

Among the speakers scheduled to appear before the fourteenth annual meeting of the Chamber of Commerce of the United States in Washington on May 11 to 13 are: Governor Albert C. Ritchie of Maryland; John W. O'Leary, president of the Chamber of Commerce of the United States; Fred I. Kent, vice-president Bankers' Trust Co. of New York; Julius H. Barnes, former head of the United States Grain Corporation; Dr. Julius Klein, director Bureau of Foreign and Domestic Commerce; S. W. Wade, superintendent of insurance of North Carolina; A. L. Humphrey, president Westinghouse Air Brake Co., Pittsburgh; Milton E. Marcuse, president Bedford Pulp & Paper Co., Richmond, Va.; John B. Miller, president Southern California Edison Co., Los Angeles; E. T. Meredith, formerly Secretary of Agriculture of the United States; A. J. Brosseau, president Mack Trucks, Inc., New York; R. Goodwyn Rhett, president People's National Bank, Charleston, S. C.

The major subject for the convention, around which all other subjects will center, is "Self Regulation in Business." There will be nine group meetings under the following general headings: Agriculture, civic development, domestic distribution, finance, foreign commerce, insurance, manufacture, national resources production and transportation and communication.

The special research committee of the American Society of Mechanical Engineers on cutting and forming of metals has had four new members added by the council: Frederick L. Eberhardt, president and general manager Gould & Eberhardt, Newark, N. J.; George H. Ashman; William W. Nichols, and E. C. Oliver, manager Oliver Instrument Co., Adrian, Mich.

General Strike Closes British Mills

Some Works Already Down and Market Badly Upset—German Mills Feel French and Belgian Competition

(By Cable)

LONDON, ENGLAND, May 3.

THE markets are disorganized by the labor situation and the future is very uncertain. With a general strike in effect general closing down is unavoidable. In the meantime pig iron demand has held up well, but no business is passing at present. Foreign ore continues dull; Bilbao Rubio is nominally 21s. to 21s. 3d., c.i.f. Tees.

Finished steel is quiet as a result of the uncertainty of the future. Some works have already closed with others operating while their fuel supplies last. The Southern Railway has purchased 30,000 tons of British rails for delivery from November, 1926, to June, 1927. The Clyde shipbuilding output in April was 13 vessels totaling about 36,000 tons.

Tin plate is quiet, waiting on future developments in the strike situation. Japan recently bought about 60,000 boxes of oil can sizes, of which Welsh makers secured half and American mills half. Galvanized sheets are quiet and black sheets continue dull and easier in price.

There was moderate domestic buying of Continental iron and steel up to the middle of last week, but such purchasing is now practically suspended because of the uncertainty of operations in a general strike.

GERMAN PRICES UNCHANGED

Reaffirmed for May—French and Belgian Competition Renewed

(By Radiogram)

BERLIN, GERMANY, May 3.

The pig iron and steel syndicates have decided to maintain the April prices and selling conditions throughout May. Negotiations are under way for a renewal of the Pig Iron Syndicate.

The domestic market is dull and in export trade French and Belgian competition is being renewed. On semi-finished materials, for instance, both French and

Belgian mills are quoting about 50c. per ton below the German export prices. Business in the bar and sheet markets is unsatisfactory.

Domestic purchasers of iron and steel, as a rule, show extreme reserve in buying. Demand for structural steel from South Germany has considerably increased and the export market for wire has improved. While domestic demand for standard rails is small, mills rolling street car rails report improved inquiry.

FRENCH MARKET QUIET

Domestic Prices Move Upward Reflecting Higher Costs but Export Sales Meet Keen Competition

PARIS, FRANCE, April 23.—Despite the balancing of the budget and the recent tax laws, the franc still stands at a low level in international exchange. Efforts by French mills to sell for export, taking advantage of this depreciated condition of the franc are unsuccessful, export demand having dropped to a low level and other European steel producing countries having become keen competitors for current business with lower prices than are quoted by the French producers. The markets are weak and purchasers are not inclined to place much tonnage as long as still greater concessions in price appear possible. In the meantime costs are advancing under the new tax schedule, increased transportation rates and higher cost of living. In the domestic market prices are on a firmer basis and in some instances slight advances have been made, but demand is light.

Pig Iron.—At the recent meeting of the producers of phosphoric pig iron, it was decided that no increase of prices as a result of the new taxes should become effective until the producers had consulted with consumers. No meeting has yet been held, so the new price is not yet known. An advance of 12.50 fr. per ton is reported in prospect, which would bring the price of No. 3 P.L. foundry from its present level of 407.50

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £ as follows:

Durham coke, del'd..	£0 18½s.	\$4.50
Bilbao Rubio oref...	1 1 to £1 1½s.	5.16 to \$5.19
Cleveland No. 1 fdy..	3 12½ and 3 13*	17.62 and 17.74*
Cleveland No. 3 fdy..	3 10 and 3 10½*	17.01 and 17.13*
Cleveland No. 4 fdy..	3 9 and 3 9½*	16.77 and 16.88*
Cleveland No. 4 forge	3 8 and 3 8½*	16.52 and 16.65*
Cleveland basic	3 10 and 3 10½*	17.01 and 17.13*
East Coast mixed	3 16½ to 3 17	18.59 to 18.71
East Coast hematite..	3 16 to 3 16½	18.46 to 18.58
Ferromanganese	15 0	72.90
*Ferromanganese	14 0	68.04
Rails, 60 lb. and up..	6 15 to 7 5	32.80 to 35.24
Billets	6 0 to 7 10	29.16 to 36.45
Sheet and tin plate bars, Welsh	6 5	30.38
Tin plates, base box..	0 19 to 0 19½	4.62 to 4.73
Black sheets, Japanese specifications	13 10 to 14 0	65.60 to 68.04
Ship plates	7 0 to 7 10	1.52 to 1.62
Boiler plates	9 0 to 11 0	1.95 to 2.39
Tees	7 5 to 7 15	1.57 to 1.68
Channels	6 10 to 7 0	1.41 to 1.51
Beams	6 5 to 6 15	1.35 to 1.46
Round bars, ¾ to 3 in.	7 12½ to 8 2½	1.65 to 1.77
Steel hoops	10 10 and 11 0*	2.28 and 2.39*
Black sheets, 24 gage	10 15 to 11 0	2.33 to 2.39
Galv. sheets, 24 gage.	15 5 to 15 10	3.30 to 3.36
Cold rolled steel strip, 20 gage	18 0	3.91

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron:(a)				
Belgium	£3 5s.	to £3 6s.	\$15.80	to \$16.04
France	3 5	to 3 6	15.80	to 16.04
Luxemburg	3 5	to 3 6	15.80	to 16.04
Basic pig iron:(a)				
Belgium	2 19	to 3 0	14.33	to 14.58
France	2 19	to 3 0	14.33	to 14.58
Luxemburg	2 19	to 3 0	14.33	to 14.58
Coke	0 18		4.37	
Billets:				
Belgium	4 5	to 4 7	20.65	to 21.14
France	4 5	to 4 7	20.65	to 21.14
Merchant bars:				
Belgium	5 5	to 6 0	1.15	to 1.32
Luxemburg	5 5	to 6 0	1.15	to 1.32
France	5 5	to 6 0	1.15	to 1.32
Joists (beams):				
Belgium	4 15½	to 4 16	1.05	to 1.06
Luxemburg	4 15½	to 4 16	1.05	to 1.06
France	4 15½	to 4 16	1.05	to 1.06
Angles:				
Belgium	5 2	to 5 4	1.12	to 1.15
¼-in. plates:				
Belgium	5 17	to 6 1	1.29	to 1.35
Germany	5 17	to 6 1	1.29	to 1.35
⅜-in. ship plates:				
Belgium	5 7½	to 5 10	1.18	to 1.21
Luxemburg	5 7½	to 5 10	1.18	to 1.21
Sheets, heavy:				
Belgium	6 3	to 6 4	1.35	to 1.37
Germany	6 3	to 6 4	1.35	to 1.37

(a) Nominal.

fr. to 420 fr. per metric ton. It is claimed in some quarters that producers are inclined to widen the difference in price between rough and smooth skin pig iron to increase the sale of the former. Demand for hematite continues good and producers have agreed upon 40,000 tons as the allotment for May, 30,000 tons for June and 20,000 tons for July. The price of hematite has been increased for these deliveries by 15 fr. per ton. Spiegeleisen has been advanced 25 fr. per ton for the 18 to 20 per cent grade, or 889 fr. per metric ton. Phosphoric iron is generally quoted at £3 (\$14.58) per ton, f.o.b. Antwerp.

Semi-Finished Material.—A sizable business is being done with British finishing mills, which are purchasing billets. Quotations are generally about 600 fr. per ton, f.o.b. works or about £4 6s. (\$20.90) per metric ton, f.o.b. Antwerp. Larger supplies are available but the price is apparently fairly firm. Blooms, however, are weak at £3 19c. (\$19.20) per ton, f.o.b. Antwerp, and larges are quoted at £4 9s. (\$21.63) per ton.

Finished Material.—Most mills are still heavily com-

mitted for the next two to three months and occasionally four months delivery is the best obtainable. Delays of delivery on beams are decreasing and orders have lately been executed in six to ten weeks. Prices, however, are apparently firm at £4 13s. 6d. to £4 14s. 6d. (\$22.72 to \$22.96) per ton, f.o.b. Antwerp. Bars are quite firm and mills with well-filled order books are inclined to advance prices. Reinforcing bars have lately been quoted at 700 to 760 fr. per ton, to domestic consumers. For export bars are generally held at £4 19s. to £5 (\$24.05 to \$24.30) per ton.

Sheets.—Heavy gages are quiet but medium and light gage sheets continue firm in price despite recent increases in production. Medium gages are quoted at about £5 13s. to £5 14s. (\$27.45 to \$27.70) per metric ton, f.o.b. Antwerp for export.

Wire Rods.—Prices continue their upward tendency and quotations range from 800 to 850 fr. (\$26.40 to \$28.05) f.o.b. works. Wire products are stronger, reflecting the upward movement of rods.

JAPAN BUYS AMERICAN RAILS

South Manchuria Rails Placed—Difference Between European and American Rail Prices Narrows

NEW YORK, May 3.—Of the rail inquiries which have been in the market from Japanese companies, bids were opened May 1 by a railroad at Osaka on 20 miles of 60-lb. sections, but award is not yet reported. The 75 miles of 65-lb. rails for which the South Manchuria Railway Co. has been in the market, representing a subsidiary railroad in Manchuria, has been awarded to Suzuki & Co., and is understood to have been placed with an American maker. This is the first purchase of rails from an American mill by the South Manchuria Railway Co. in several years. Iwai & Co., New York, have placed their share of the Nippon Oil Co.'s tin plate purchase, about 27,500 boxes, with a large American maker.

Bidding on about \$500,000 worth of rails and track material for a Brazilian railroad brought out a price from a Continental mill about 9 per cent under the lowest American bid, according to cabled information received by the United States Department of Commerce. It was noted, however, that the difference in the prices of European bidders and mills in the United States was much smaller in this case than formerly, when Continental makers quoted lower prices. This advance to a high level is possibly explained by the recent formation of the European Rail Makers Association.

American barbed wire has been in good demand in Brazil recently, especially north and south of Rio de Janeiro, where the prices of mills in the United States are comparable with European quotations because of the heavy freights between European and Brazilian ports. Recent bidding, however, on about 500 tons of galvanized wire, according to the Commercial Attaché in Rio de Janeiro, resulted in Belgian prices 30 per cent lower than the American bid. On structural steel, sellers in the United States have been about 40 per cent higher than Continental mills. A number of orders for galvanized sheets, however, have been taken by sellers of the American product.

Inquiry from Japan is confined to small lots of special materials. Chinese merchants are inquiring for a moderate volume of various kinds of material, but few orders have been placed. The boycott of British companies by Chinese in the Canton district is still effective, but an end of the boycott seems to be expected in some quarters before long. In the meantime, some small business in wire shorts is being done with Shanghai and occasionally with Canton.

With British mills quoting as low as \$77 to \$78 per ton, c.i.f. Japan, on light gage black sheets, there is at present little prospect of American mills securing

much of this business at their current quotation of \$82 per ton, c.i.f. Japan. The recent reduction by British black sheet sellers to the present level has depressed the domestic market in Japan, and with fairly sizable stocks available from warehouses there and about 25,000 tons of their own product in the hands of the Kawasaki Dockyard Co., the outlook for sheet purchasing is not considered particularly bright by exporters to Japan.

More Metal Lath Exported

WASHINGTON, May 4.—Exports of metal lath from the United States totaled 3441 gross tons, valued at \$567,783, in 1925, compared with 2166 tons, valued at \$418,689, in 1924, according to the Iron and Steel Division, Department of Commerce.

Forty-four foreign countries bought American metal lath in 1925. The leading buyers of this steel construction material in that period were: Argentina, Japan, Chile, Canada, Mexico, Colombia, Venezuela, Brazil, Peru, China, British India and Australia. These markets took from 52 gross tons in the case of Australia to 840 tons for Argentina.

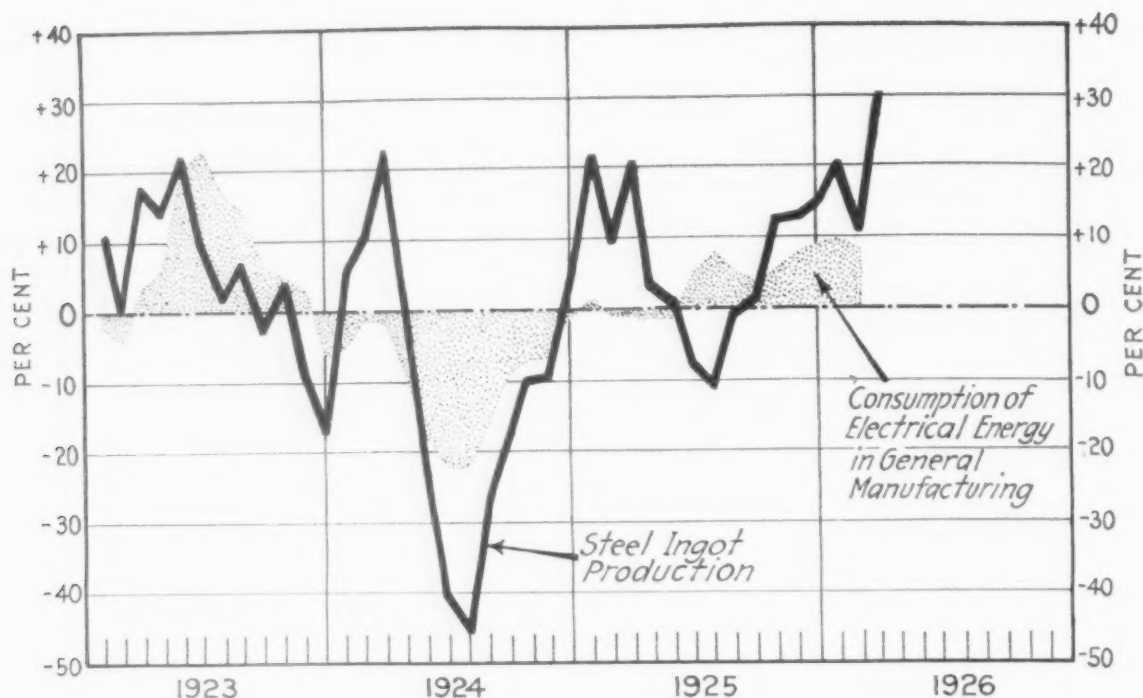
American metal lath went to all parts of the world, including Siam, New Zealand, Dutch Guiana, Jamaica, Newfoundland and Labrador, etc., but the region that consumed the greater portion of it was South America.

Witherbee, Sherman & Co. Appoint New Agent

Witherbee, Sherman & Co., producers of Champlain pig iron in foundry, malleable and basic grades with furnaces at Port Henry, N. Y., have appointed as their exclusive sales agent Hickman, Williams & Co., Inc., with offices in the Equitable Building, New York, Old South Building, Boston, and Widener Building, Philadelphia. It was the desire of Witherbee, Sherman & Co. for an exclusive agent which caused them to change their representation. Heretofore the company has been represented by Rogers Brown & Crocker Brothers, Inc., New York, which also holds the agency for competing brands of pig iron. Witherbee, Sherman & Co. have moved their New York office from 30 Church Street to quarters at 1441 Equitable Building, which they will occupy jointly with Hickman, Williams & Co.

The Philadelphia plant of Hoopes & Townsend Corporation, Broad and Buttonwood Streets, is being abandoned and the machinery equipment will be sold May 17 and 18 under a receiver's sale in equity. This sale does not include the main plants in Chicago, Detroit and Bayonne, N. J., which will continue operating. Enormous increase in value of land at the Philadelphia plant induced the sale.

Fluctuations in Steel Production Compared with Those of Power Consumption of General Manufacturing Industries



THE amount of electrical energy consumed by general industry month by month was recently selected by the *Electrical World*, New York, as a barometer of industrial activity. It secured the figures of electrical consumption of about 1500 consumers of power. The data were obtained from large central stations. The manufacturing plants, it is explained, consume approximately 5 billion kwhr. of electrical energy per annum.

The plotting of the barometer is shown in shaded areas in the accompanying illustration. For base the average monthly consumption for the years 1923, 1924 and 1925 was taken as 100. The actual consumption for each month is then indicated as a percentage above or below this monthly average.

Against this graph has been plotted steel ingot production as a percentage above or below the average monthly output for the same three years. On the whole, swings of steel production appear to precede those of electrical demand, which seems reasonable in that that part of industry which deals with iron and steel must put work on the metal that has already been made and is in process of continued manufacture. In 1924, however, the swings seem to be closely simultaneous, while in 1925 the marked production of steel in the first part of the year showed little response in the demand on central stations, unless the peak of consumption in June and July, relatively small though it is, is in part a result of the heavy steel production of the spring of that year.

The amount of power needed to operate industries is so evidently closely proportional to output that the *Electrical World* contribution will be interesting to watch. Also it is reasonable to believe that when stocks in process are low there is likely to be little time lag between peaks and valleys of a primary producer's cycle and those of succeeding consumers.

Business Analysis and Forecast Section

The schedule of the next installments of the *Business Analysis and Forecast*, by Dr. Lewis H. Haney, Director, New York University Bureau of Business Research, is as follows: May 13—Activity in Steel Consuming Industries; May 20—Position of Iron and Steel Producers; May 27—General Business Outlook.

In This Issue

Millions wasted by slipshod cost-estimating.—Huge sums of money spent in experimental projects foredoomed to failure would be saved by a knowledge of accurate cost-finding.—Page 1270.

Are highly specialized machines threatening industry's supply of broadly trained executives?—Machine tool builder looks to school shops to supply the future demand for men capable of leadership.—Page 1275.

One-price policy can be maintained.—By refusing to sell to distributors who cut prices, manufacturers can maintain standard prices on their products, former Department of Justice counsel advises.—Page 1268.

Six-mile island has one of world's greatest iron ore deposits.—Bell Island, near Newfoundland, has available four billion tons of low cost ore.—Page 1266.

Purchasing official tells how to reduce selling expense.—Eliminate the 25 per cent of salesmen's calls now made on non-prospects. Estimates that salesmen's visits are increasing at rate of 20 per cent a year. Average purchasing agent called on by 30 salesmen each day.—Page 1267.

Training apprentices can be done successfully by small manufacturers.—Every plant, small or large, can conduct training program to advantage, if qualified supervisor is available, even on part time.—Page 1276.

Salesmen's weekly conference increased sales.—Machinery dealer has factory representatives attend salesmen's meetings to answer questions and furnish selling points.—Page 1277.

Pays customers a cash bonus.—Rubber hose manufacturer pays a yearly bonus to customers, based on amount of profits and volume of business placed.—Page 1267.

Small orders often unprofitable.—Distributor of mill supplies reports that one-tenth of his orders amount to less than \$2 each; little profit in them, and frequently a loss.—Page 1268.

Pig iron output increases.—Average daily production in April was 115,004 gross tons, a gain of 3.5 per cent over March, and the best month since July, 1923.—Page 1294.

Prophesies steady growth in the South's manufactures.—Producing a much greater quantity of raw materials than it needs and a much smaller quantity of manufactured products than it consumes, the South can profitably accommodate more factories. Raw materials, labor, water power, fuel and the consuming market are all available, says Southern steel company head.—Page 1273.

What do scrap prices forecast?—Though swings in the steel trade are anticipated by fluctuations in scrap prices, the interval is not constant and will vary in proportion to the extent men recognize and act upon it.—Page 1291.

The "accident repeater" is quickly detected.—The safety engineer quickly discovers workers with a penchant for injuries; British attempt to determine the average percentage of "repeaters" is unsuccessful.—Page 1292.

Shall power be made or purchased?—The answer can not be given without a careful study of individual plant requirements; small private power plant may justify itself, if steam is required for manufacturing processes.—Page 1259.

March machinery exports up \$3,000,000.—Total for the month is valued at \$35,241,960. Machinery imports for March, at \$1,567,912, register a 7 per cent gain over February.—Page 1272.

New device indicates depth of case-hardening without destroying material tested.—Alternating magnetic flux penetration method consumes but a second of time.—Page 1281.

The Iron Age, May 6, 1926

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April Makes a New Subscription Record

FLUCTUATIONS in circulation figures, in the case of a business paper like THE IRON AGE, are widely accepted as indicative of changes in industrial activity. The upward trend in the number of subscribers added to THE IRON AGE list has been mentioned recently on this page, but in April a new monthly record was made. This fact we take in part as a token of a good era immediately ahead and in part as an unremitted obligation to our readers to use every opportunity to increase the interest and value of the "world's greatest industrial paper," as it has been termed.

For News Summary See Reverse Side

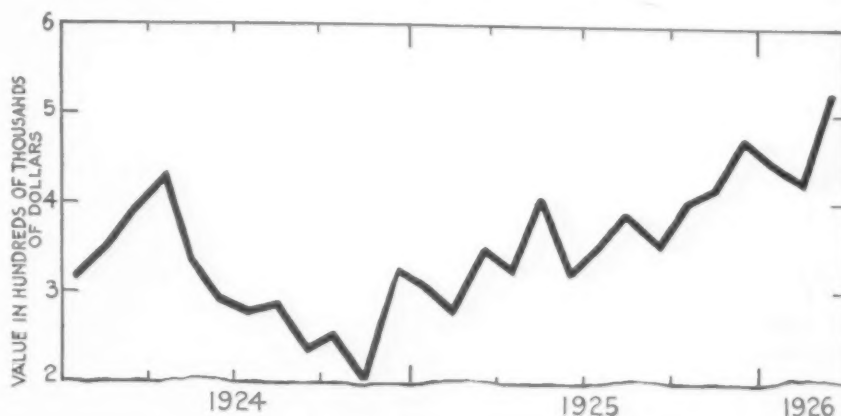
FOUNDRY EQUIPMENT SALES

Monthly Business of Manufacturers' Association —Eleven Firms Reporting Regularly

Sales reported by the Foundry Equipment Manufacturers' Association, Cleveland, for the past 27 months, together with shipments over the same period and orders on hand for 16 months, are shown in the table. These figures cover the activities of 11 firms, with occasionally one firm missing.

It will be noted that sales in March formed the largest total, with one exception, in the entire period. The gain over February was about 2½ per cent and over March, 1925, about 3 per cent. Shipments in March formed the largest total in the entire list, the

*Steady Upward Trend
Has Featured the
Curve of Foundry
Equipment Shipments
Since the Low Point
Was Reached in No-
vember, 1924. Most of
the temporary setbacks
have been due to short
months—the curve not
being "corrected" for
"seasonal variation"*



gain over February being nearly 25 per cent, while over March of last year a gain of more than 50 per cent was registered. Orders on hand, as of April 1, showed a loss of 6 per cent from March 1, standing at about the average of the 16 months.

Foundry Equipment			
	Sales	Shipped	Orders
		1926	End of Month
January	\$414,121	\$445,377	\$501,793
February	472,814	422,004	536,978
March	483,010	525,655	504,671
3 months.....	\$1,369,945	\$1,393,036	.....
		1925	
January	\$304,724	\$305,580	\$421,918
February	326,887	277,855	446,895
March	469,324	348,589	539,539
3 months.....	\$1,100,935	\$932,024	.....
April	\$345,907	\$325,951	539,232
May	332,175	407,339	463,431
June	334,424	318,442	460,383
July	353,560	352,602	457,925
August	580,864	388,370	598,143
September	296,437	351,121	544,041
October	424,054	400,646	518,794
November	480,327	414,148	593,455
December	416,610	472,144	550,016
Total year.....	\$4,665,300	\$4,362,794	.....
		1924	
January	\$416,017	\$315,684	.....
February	386,746	345,491	.....
March	387,579	389,799	.....
3 months.....	\$1,190,342	\$1,050,974	.....
April	\$374,772	\$430,479	.....
May	285,217	335,450	.....
June	295,049	287,916	.....
July	201,875	276,701	.....
August	237,410	284,150	.....
September	219,278	233,854	.....
October	259,870	252,579	.....
November	284,617	203,557	.....
December	393,367	324,296	431,656
Total year.....	\$3,742,703	\$3,679,961	.....

Votes Against Reporting Metric Bill

WASHINGTON, May 4.—The House Committee on Coinage, Weights and Measures last week voted not to report out the metric bill. After this action was taken Representative Lowrey introduced a joint resolution for adoption of the bill and this resolution also was voted down. A similar resolution pending before the Senate committee is expected to be defeated.

TO SHOW MANY TOOLS

Plans for the New Haven Machine Tool Exhibition in September

For the sixth annual New Haven Machine Tool Exhibition, to be held at New Haven, Conn., Sept. 7-10 the plans of the management promise a larger undertaking than in any preceding year. H. R. Westcott, chairman of the Exhibition Committee, 400 Temple Street, New Haven, announces the following advisory committee:

Chairman: Prof. James A. Hall, Brown University, Providence, R. I.

Morris Buck, managing editor *Electric Railway Journal*, New York.

R. S. Burnett, manager standards department, Society of Automotive Engineers, New York.

C. R. Burt, vice-president and general manager Pratt & Whitney Co., Hartford, Conn.

F. H. Colvin, editor *American Machinist*, New York.

A. C. Cook, vice-president Warner & Swasey Co., Cleveland.

A. I. Findley, editor *THE IRON AGE*, New York.

J. W. Hook, president Geometric Tool Co., New Haven.

F. G. Hughes, vice-president New Departure Mfg. Co., Bristol, Conn.

L. W. W. Morrow, managing editor *Electrical World*, New York.

E. R. Norris, director works equipment, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Erik Oberg, editor *Machinery*, New York.

C. M. Pond, manager small tool works, Pratt & Whitney Co., Hartford, Conn.

Marshall Prentiss, secretary and treasurer Henry Prentiss & Co., New York.

Calvin W. Rice, secretary American Society of Mechanical Engineers, New York.

N. M. Rice, vice-president New York, New Haven & Hartford Railroad Co., New Haven, Conn.

N. G. Shidle, editor *Automotive Industries*, Philadelphia.

J. A. Smith, general superintendent General Electric Co., Schenectady, N. Y.

E. K. Wennerlund, factory-production engineering section, General Motors Corporation, Detroit.

G. R. Wood, R. S. Stokvis & Sons, Inc., New York.

The exhibition is conducted jointly by the New Haven section of the American Society of Mechanical Engineers, the mechanical engineering department of Sheffield Scientific School, Yale University, and the New Haven Chamber of Commerce. The technical program is arranged under the supervision of the machine shop practice division of the A. S. M. E. Thursday, Sept. 9, has been set aside as executives' day.

At the 1925 exhibition there were 18,000 visitors and 20 States were represented. The exhibits numbered more than 100.

The three articles on "Ten Types of Open-Hearth Boils" by Henry D. Hibbard, which appeared in *THE IRON AGE* of Dec. 3, 10 and 17, 1925, have been reproduced as a mimeographed pamphlet by the United States Steel Corporation for distribution among some of its employees.

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Labor Wars on Britain

WITH something like the same refusal to believe war would come that possessed it at the end of July, 1914, Great Britain on Monday came face to face with a virtual state of civil war. The labor leaders who had ordered a general strike may have believed that at the fifty-ninth minute of the eleventh hour the Government would announce a continuance of the coal subsidy without insisting on the recall of the strike order. But they seemed not to see, as Premier Baldwin saw, the naked fact that the Government had been challenged by a power that put itself above the authority of orderly government and that nothing remained for him but to meet the challenge.

Organized labor had already throttled the London press. Moreover, the strike orders, which in many cases involved the breaking of contracts, had gone out while the premier was still in conference with the representatives of labor, the purpose evidently being to coerce the Government by bringing it into the very shadow of one of the greatest calamities that had ever threatened its life.

Difficult as the British coal mining situation has been, and involving problems that have seemed well-nigh impossible of solution, the labor leaders had no warrant for so desperate a resort as a general strike. The hardship of an eight-hour day as against a seven-hour day, or the alternative of some reduction in wages, is but a small weight in the balance, as against the sufferings which millions must undergo as 2,525,000 workers in essential industries make war upon the millions dependent upon those industries for the very necessities of life.

It is hard to read Premier Baldwin's address in Commons without appreciating how far he has gone in patient striving for agreement and with what sober appraisal of what may come out of it he takes up the duties imposed by the present crisis. There are those on both sides who announce that "now is the time to settle it once for all," but they are far in the minority. In so far as physical force enters into the conflict it will settle little. For a conflict of such gravity and so deeply affecting the life of the people, this one is singularly free from political

designs. More might develop in that direction if the present state of war is long continued. Probably neither side is willing today to contemplate such an eventuality.

The paralysis of British industry, even for a month or a fortnight, would be a disaster of far-reaching consequences. With all the help of the coal subsidy in the past nine months, British manufacturers have been far from hopeful in their forecasts, and now that all exports are to be cut off, at least for a time, by the closing of mines and the idleness of railroad and ocean transport workers, losses are possible that cannot be recovered in many months. Meanwhile business will be diverted to Great Britain's competitors in international trade, with the probability that some percentage of it will not return when British labor is again willing to allow the wheels to turn.

However, speculation on the economic and commercial consequences of so gigantic an attempt to throw a nation into idleness cannot go far. The long continuance of the present situation is highly improbable. The losses would be too stupendous, and the British capacity for compromise is still unexhausted.

Nickel Saved by Research

RESEARCH in industry has been giving new and striking proofs of its value. Intensive and well directed investigation in nickel has expanded production to about 60 per cent above that of pre-war times and has revived this industry from a lapse following the war which nearly proved its undoing.

As a result of the armistice, and of the Washington conference on naval armament, the chief outlet for this important metal was cut off. The result was a drop in output to only 259,000 tons of the ore in 1922, compared with 1,643,000 tons in 1918 and with 784,000 tons in 1913. Facing what appeared to be a crisis, the leading company in the industry organized a research department which has developed new and extensive uses and enlarged some of the older ones until last year the ore output was 1,264,000 tons. The discovery of new alloys and the improvement in various alloy steels by heat

treatment have been largely responsible for this remarkable recovery. Today nickel is more important in its industrial applications than ever.

The case is not unique. Long continued experiment put vanadium where it is today. The value of tungsten to industry has been enhanced greatly by research, as has the use of some of the rare metals such as zirconium and tantalum. Notable work has been done on chromium, which, in high temperature and in non-corrosive alloys, bids fair to revolutionize some of the older industrial processes and to make new ones possible.

Scrap Makes Its Own Rules

EARLY last year the iron and steel scrap trade paid some attention to the fact that, in the two preceding round trip movements of heavy melting steel scrap prices in the Pittsburgh district, the turns in scrap prices had antedated turns in the rate of steel ingot production by an average period of about six weeks. That is, the middle date of the spell in which the lowest price ruled for scrap fell about six weeks earlier than the lowest rate of steel production, and the highest price of scrap came about six weeks before the high point occurred in ingot production.

The steel trade did not accept this as a working rule, but considered it a fact worth taking into account, along with other considerations, in attempts to forecast the course of scrap prices, while it might also furnish some hint as to the probable course of steel production.

Lately some financial writers have given considerable attention to this point, and have written as if they felt they had a trustworthy working rule, a sort of key to the future in steel.

The steel trade knows itself better than to place special reliance on any one such indicator. As to the probable course of scrap prices, it required no rule and no detailed statistical study to support the view that scrap prices, being highly sensitive, will just naturally anticipate swings in the steel trade and therefore in the volume of consumer absorption of scrap.

Now that a high point, a low point and another high point have been passed in the rate of steel ingot production since the talk began about scrap prices being barometric of ingot production, it is of interest to see what has occurred since.

It is the period that is interesting, not the mere anticipation, because anticipation is natural if men use their wits at all. A failure to anticipate, by some interval, would represent wholesale blundering on the part of traders. Both scrap dealers and mill executives should be able to see at least a little way ahead an upturn or downturn in the rate of ingot production, and it does not require unanimous consent, merely a preponderance of opinion, to alter the course of scrap prices.

The principle held before the war, but there was no definite interval. Scrap reached a high point in October, 1912, and the high point in ingot production, as suggested by THE IRON AGE statistics of pig iron production by steel works, there being no monthly ingot statistics then, fell in April, 1913, six months later. Then scrap reached its low point toward the latter part of November, 1914, while the

following was the low month in ingots, January, 1915, recording a distinct upturn. The divergence in period shows how many other elements entered into appraisals.

As to recent intervals, the high ingot production of March, 1925, and the low ingot production of the following July came about ten weeks after the periods of respective high and low prices of scrap. The last high level in heavy melting steel scrap in the Pittsburgh district ran from about the beginning of November, 1925, to about the middle of December, while the high point in ingot production fell toward the middle or latter part of March, making approximately an interval of 14 weeks.

Rules in steel are to be avoided, except as furnishing possible suggestions. It is men who make the events, and men think. If any rule were to be formulated from the statistics here presented, it would be that men, having recognized a rule, endeavored to anticipate its working and thus prolonged the period of anticipation from six weeks to something like a dozen weeks.

Aluminum for Railroad Cars

RAILROAD engineers will study the Chicago terminal electrification on the Illinois Central from many angles. Steel men will be interested in it from at least one—the use of aluminum and heat-treated steel in the rolling stock.

Study of the rate of acceleration convinced the Illinois Central that the running time of electric trains could be reduced approximately 20 per cent. This means far more than the saving of commuters' time (which often seems to be rated of no value at all). It means that the amount of equipment and the labor charges can be reduced correspondingly. But to do this effectively the strictest attention had to be given to every car detail, so as to reduce weight to a minimum.

A number of the cars bought for the electrified zone have been in operation for several years. They are of the vestibuled type, seat 84 passengers, and have eleven doors operated by remote control. These cars now weigh 92,000 pounds each, with the prospect of a further increase of 65,000 pounds when the motors and electrical control shall have been added. It is obvious that, with units of such size, weight saving will mean important economies in operating expense.

Consequently passenger cars recently ordered for the new system, 215 in all, will have bodies built entirely of copper-bearing steel with inside sheathing of aluminum, roof sheets and lower deck sheets of aluminum alloy, and eleven doors and a motor-man's compartment of sheet aluminum. In this way a saving of no less than 6000 pounds per car can be made from the weight of the cars already in service.

This is perhaps the first application of the principles underlying automotive design to the manufacture of railroad rolling stock. We refer to the truism that it costs money to haul pig iron around on rubber tires. Much has been said about the corresponding fact that useless weight in a railroad car means useless and expensive wear on rails, road bed and locomotive, and also burns up much coal. Much has been said, but little has been done,

other than to design units of greater and greater capacity.

Heat-treated steel will not be entirely absent from these new Illinois Central passenger cars. Leaving aside the number of special alloys and alloy steels used in the electrical equipment, such as the brakes, couplers, heaters, signals and controls, we note the interesting fact that heat-treated forged and cut gears will transmit power from the 250-horsepower motors to the car axles. Here again is the march of progress.

Machine tool builders are also in line in this respect. The Pratt & Whitney Co. recently exhibited gears from its 1910 and 1925 designs; the one cast iron, the other heat-treated chrome-vanadium steel; the old one three times the size of the other, but the little one transmitting three times the horsepower at the same speed, and also subject to clash.

Weight for weight the new is at least nine times as good as the old!

Freight Rates Then and Now

IN connection with the centennial celebration April 17 of the charter for operating a steam railroad over the 17 miles from Albany to Schenectady, N. Y., interesting figures were given regarding freight rates preceding the advent of railroads. From Philadelphia to Pittsburgh, by horse-drawn wagons, the freight rate in 1826 was \$140 per ton. This is not far different from the total charge today for shipping a ton of freight from Philadelphia to San Francisco and back, then to San Francisco again and back. From Philadelphia to Pittsburgh today, figuring on the average ton-mile rate of 1.1c., the distance of 350 miles would call for about \$3.85 for one ton, or less than one-thirtieth the charge of a century ago.

With the purchasing power of the dollar only two-thirds as much as in 1826, the true comparison becomes about as \$140 to \$2.60, or more than fifty to one. Consideration of this fact, however, does not make it any easier for western Pennsylvania or Buffalo foundry iron to compete, on the seaboard, with imported material.

Retirement of Obsolescent Railroad Cars

ANALYSIS of the railroad cars in service which have become obsolescent as cars of larger individual capacity have grown common shows that on Dec. 31, 1924, there still were 23,860 cars with capacity under 60,000 pounds each, according to an article in *Railway Review*. This was a decrease in eight years from 84,595 such cars. The average age of the 23,860 cars was 29.31 years. At the same time, the number of cars having 60,000 pounds capacity or more, but less than 80,000 pounds, was 520,104. Together, these figures represented approximately 25 per cent of the total number of freight cars on American railroads.

In connection with replacing these cars, it must be remembered that the cost of freight cars in the early days of this century averaged about \$685. Present costs run from \$2,200 to \$2,600 for the same type of equipment. On the basis of sub-

stituting modern cars for all of the smaller type and for half of those between 60,000 and 80,000 pounds capacity, the estimated new capital requirement is given as \$450,000,000.

Savings in fuel, in repairs and other maintenance, and in handling charges, resulting from the use of modern equipment, would doubtless pay a fair dividend upon the capital thus invested. But whether this dividend is sufficient to induce the investment is another matter.

Accident Repeaters

ONE investigation of the British Industrial Fatigue Research Board aimed to establish a numerical factor representing workers who are unusually susceptible to accident. Just what was hoped for is a little vague; but the thought seems to have been that out of a given number of persons in any employment a certain more or less constant per cent could be found of those whom American safety engineers know as "repeaters." The idea of separating this class from the common run of accident cases has never been taken seriously in this country. Nor will the British Industrial Fatigue Board make further attempts in this direction, it announces. Miss E. M. Newbold, who conducted the investigation under the direction of the Industrial Statistical Committee of the Medical Research Council, frankly admits failure. *London Engineering* says of the report:

Its effect is not much more than to give some confirmation to previous beliefs; to suggest, for instance, that a comparatively small number of workers particularly susceptible to accidents, or prone to report them, may exercise a notable effect on the average number among a body of workers who seem to be alike in other respects; that young persons have a higher percentage of accidents than older persons; and that minor accidents and minor sicknesses seem to increase together. The positive results of the investigation are, in fact, of no great account. The report, however, is valuable for its negative results, which it frankly admits.

The accident repeater is not an uncommon individual. Somehow he manages to get hurt over and over again, unless corrective measures, which the safety engineer sets in operation after a few such happenings, prove effective. The worker may be careless, reckless, indifferent to rules and discipline, intemperate, stupid, clumsy, or of the type, common among young men, who indulge in horse play out of season. It may be a matter of physical infirmity, though nowadays a worker possessed of a chronic weakness seldom remains unknown to those who have accident prevention in hand. Worry or grief has been known to cause accidents, as the worker's mind wanders from the task in hand. The danger to the absent-minded person is well recognized. Any one of these reasons, or their combination, may bring about a series of accidents.

Finding a numerical factor, to be reckoned as a constant in factory costs or labor turnover, would amount to little. The remedy lies in correcting the individual's exaggerated factor of error. The usual American procedure is to establish close, active cooperation between the foreman and the safety department, which may be elaborately organized as in many large establishments, or it may be the live, intelligent interest of the manager.

as is common in many smaller plants whose low accident rate proves the efficacy of such supervision. A foreman is presumed to know his people well. Warned by the safety engineer, he gets after the

repeater and keeps him under observation. The employee who is found to be incorrigible and cannot keep out of danger usually disappears from the payroll.

CORRESPONDENCE

Using Atomic Hydrogen in Welding

To the Editor: In your issue of April 8 is a very interesting article in connection with the use of non-oxidized gases to surround an arc weld.

The advantage of this, it would seem from the writing of the article, has just been discovered by the writer of this article. It would be interesting, I believe, if he would consider patent No. 1,553,543, issued to the writer on Sept. 15, 1925, which is the result of a good many years of experimentation not only for the elimination of oxidation in welding, but also the elimination of the oxide which may already be in the steel

by the addition of the fluxing material. The patent mentioned covers not only hydrogen but inert gaseous agents. The writer also refers you to patent No. 1,354,266 issued to Plant, also No. 641,767 issued to H. Dresse, and numerous others running back for at least 25 years.

There is very little doubt about the efficacy of non-oxidized gases, but there is some doubt that its application may be made universal commercially because of obvious handicaps. There is also a good deal of doubt whether the added ductility, which this scheme undoubtedly gives, is of sufficient commercial importance to make it a universally applied scheme over the welds which can be made with the carbon-arc process without the addition of the non-oxidized atmosphere surrounding the arc.

J. F. LINCOLN,

Vice-president,

Lincoln Electric Co.

Cleveland, Ohio.

REINFORCING STEEL

Awards Total About 6500 Tons — 2500 Tons Being Bid on for General Electric Plant

Awards of reinforcing bars during the week totaled about 6500 tons, the largest item being 1000 tons and the others were all 500 tons or less. The outstanding item among 6500 tons of bars pending is 2500 tons for the General Electric Co.'s new plant in Philadelphia. Awards follow:

LONG ISLAND CITY, N. Y., 200 tons, building for Morganite Brush Co., New York, to Truscon Steel Co.

LONG ISLAND CITY, 100 tons, warehouse, Pierce-Butler & Pierce Mfg. Corporation, to Truscon Steel Co.

NUTLEY, N. J., 125 tons, public school, to Truscon Steel Co.

PATERSON, N. J., 100 tons, coal pocket, to Igoe Brothers.

MANSFIELD, OHIO, 185 tons, Richland Hotel, to Pollak Steel Co.

PITTSBURGH, 300 to 400 tons, Tenth Street tunnel, to Jones & Laughlin Steel Corporation.

CHICAGO, 1000 tons, Northwestern University Stadium, to the Kalman Steel Co.

CHICAGO, 300 tons, La Salle Street bridge, to Olney J. Dean & Co.

CHICAGO, 120 tons, foundations for the Sheriden-Aldine Hotel, to Barton Spiderweb System, Inc.

CHICAGO, 280 tons, Astor Street apartment building, to Olney J. Dean & Co.

CHICAGO, 100 tons rail steel, Harbor apartment building, to Inland Steel Co.

CHICAGO, 100 tons rail steel, Winthrop Avenue apartment building, to Inland Steel Co.

CHICAGO, 100 tons, University of Illinois pharmacy building, to Concrete Engineering Co.

CHICAGO, 500 tons, subway for the Chicago & Western Indiana, to Concrete Engineering Co.

CHICAGO, 100 tons rail steel, building, for James Mfg. Co., to Olney J. Dean & Co.

CHICAGO, 100 tons rail and billet steel bars, St. Hyacinth Church, to Olney J. Dean & Co.

CHICAGO, 355 tons, Belmont Theater, to Wendnagel & Co., Chicago.

ILLINOIS, 350 tons rail steel, State road work, to Kalman Steel Co.

HILLSIDE, ILL., 100 tons, Catholic Seminary, to Concrete Engineering Co.

WAUKEGAN, ILL., 500 tons, reconstruction of building at Johns-Manville plant, to American Bridge Co.

KENOSHA, WIS., 215 tons, waterworks construction, to Truscon Steel Co.

MILWAUKEE, 500 tons of rail steel, Chicago, Milwaukee & St. Paul Railroad grain elevator, to Inland Steel Co.

MILWAUKEE, 175 tons, Tegtmeyer Hotel, to American System of Reinforcing.

SAN FRANCISCO, 100 tons, garage, Mercantile Trust Co., to W. S. Wetenhall Co.

SAN FRANCISCO, 100 tons, California Meat Co., to Gunn, Carle & Co.

SANTA MARIA, CAL., 250 tons, highway bridge, to unnamed Los Angeles jobber.

ANTLER, CAL., 196 tons, four bridges on State highway, to unnamed company.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

BROOKLYN, 460 tons, building for *New York Daily News*; general contract awarded to Hegeman Harris Co.

NEW YORK, 300 tons, section of subway; general contract awarded to Heyman & Goodman Co.

EAST ORANGE, N. J., 170 tons, Muir department store.

DETROIT, 500 tons, hotel; general contract awarded to Lundoff-Bicknell Co., Cleveland.

PHILADELPHIA, 2500 tons, manufacturing buildings for General Electric Co.

TROY, OHIO, 150 tons, plant for Hobart Mfg. Co.

CHICAGO, 150 tons, Spencer public school.

CHICAGO, 150 tons, Samuel Gompers School.

CHICAGO, 350 tons, sewage treating plant for sanitary district, Division Q.

CHICAGO, 300 tons, theater at Ninety-first Street and Cottage Grove Avenue; E. P. Rupert, architect.

CHICAGO, tonnage being estimated, two buildings for Crane Co.; Graham Anderson, Probst & White, architects.

CHICAGO, tonnage being estimated, building at 100 Monroe Street; Frank E. Chase, Inc., engineer.

BLOOMINGTON, ILL., 600 tons, sewage treating plant.

CHICAGO, 200 tons, Chatelaine Tower Hotel; Roy France, architect.

CHICAGO, 400 tons, Midwest Athletic Club; Michaelson & Rognstad, architects.

CHICAGO, 150 tons, Bradwell public school.

CHICAGO, 150 tons, Locke public school.

CHICAGO, tonnage being estimated, addition to Crawford Avenue station of Commonwealth Edison Co.

Remodeling No. 2 blast furnace at the Steubenville, Ohio, works of the Wheeling Steel Corporation is to be started immediately. The capacity of this furnace will be increased from 400 to 725 tons per day. A new skelp mill is to be begun at once at the Benwood works of the company, to provide additional skelp for making pipe. The mill will roll from 2-in. to 12-in. widths. This will be used entirely by the company's tube department. Arthur G. McKee & Co., Cleveland, have the contract for the blast furnace work.

April Iron Output Increases Sharply

Daily Rate Largest Since July, 1923—Increase Over April

Daily Rate 3972 Tons or 3.5 Per Cent—

Net Gain of One Furnace

A SUBSTANTIAL gain in pig iron output over March was made in April. The April daily rate of 115,004 gross tons per day was 3972 tons per day in excess of that of March—an increase of 3.6 per cent. The March increase over February was 6.4 per cent. In February there was a decrease of 2.4 per cent, due to

the demand for coke for fuel. In January an increase was registered of 2 per cent.

The production of coke pig iron for the 30 days of April was 3,450,122 tons or 115,004 tons per day as compared with 3,441,986 tons or 111,032 tons per day for the 31 days in March. The April daily rate was the largest since July, 1923, when it was 118,656 tons.

There was a net gain of one furnace in April, 6 having been blown in and 5 shut down. This contrasts with a net gain of 10 in March, 2 in February and with a net loss of 10 in January.

Capacity Active May 1

There were 237 furnaces active on May 1 as compared with 236 on April 1. The estimated daily capacity of the 237 furnaces was 115,150 tons per day in contrast to 114,000 tons per day for the 236 furnaces operating on April 1. Of the 6 furnaces blown in during April, 2 each were Steel Corporation, in-

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant*	Total
April, 1925	83,827	24,805	108,632
May	74,415	20,127	94,542
June	70,452	18,663	89,115
July	65,715	20,221	85,936
August	68,530	18,711	87,241
September	70,300	20,573	90,873
October	76,464	21,064	97,528
November	77,262	23,505	100,767
December	81,552	23,301	104,853
January, 1926	83,867	23,107	106,974
February	81,148	23,260	104,408
March	85,841	25,191	111,032
April	89,236	25,768	115,004

*Includes pig iron made for the market by steel companies.

Pig Iron Production by Districts, Gross Tons

	April (30 days)	March (31 days)	Feb. (28 days)	Jan. (31 days)
New York	236,730	232,816	201,751	232,265
New Jersey	.....	.....	.....	.....
Lehigh Valley	94,776	93,037	75,728	84,111
Schuylkill Valley	80,230	76,771	67,240	72,396
Lower Susquehanna and Lebanon Val- leys	36,755	43,112	39,516	44,637
Pittsburgh district	725,982	750,190	642,236	765,621
Shenango Valley	125,384	119,090	99,357	120,496
Western Pa.	158,790	169,039	118,490	121,523
Maryland, Virginia and Kentucky	98,783	84,488	71,724	85,479
Wheeling district	123,903	125,071	121,326	124,663
Mahoning Valley	348,174	322,570	263,866	306,921
Central and North- ern Ohio	340,329	322,698	260,458	313,769
Southern Ohio	46,050	50,000	42,864	48,227
Illinois and Indiana	640,173	656,524	544,069	584,812
Mich., Minn., Mo., Wis., Colo. and Utah	147,902	140,188	134,691	151,715
Alabama	237,808	244,403	228,799	248,274
Tennessee	8,299	11,989	11,300	11,232
Total	3,450,122	3,441,986	2,923,415	3,316,201

Coke Furnaces in Blast

Furnaces	Total Stacks	May 1—		April 1—	
		In Blast	Capacity per Day	In Blast	Capacity per Day
New York:					
Buffalo	21	15	6,660	15	6,725
Other New York	5	3	1,225	3	1,120
New Jersey	4	0	.....	0	.....
Pennsylvania:					
Lehigh Valley	12	7	2,920	7	2,925
Spiegeleisen	2	2	235	2	235
Schuylkill Valley	12	7	2,675	7	2,780
Susquehanna Valley	8	2	795	3	1,165
Ferromanganese	1	0	.....	0	.....
Lebanon Valley	4	1	230	1	225
Ferromanganese	2	0	.....	0	.....
Pittsburgh District	52	42	23,680	42	23,890
Ferro. and Spiegel	4	2	265	3	400
Shenango Valley	14	9	4,390	7	3,680
Western Pa.	19	10	4,900	11	5,345
Ferro. and Spiegel	2	2	310	2	300
Maryland	6	6	2,635	6	2,085
Wheeling District	12	9	4,460	8	4,035
Ohio:					
Mahoning Valley	26	21	11,605	20	10,820
Central and Northern	22	20	11,440	20	10,970
Southern	13	5	1,535	5	1,615
Illinois and Indiana	42	34	21,340	34	21,225
Mich., Wis. and Minn.	12	8	3,090	8	2,640
Colo., Mo. and Utah	7	4	1,835	4	1,830
The South:					
Virginia	17	1	270	1	250
Kentucky	7	1	280	1	385
Alabama	34	23	7,925	23	9,000
Ferromanganese	1	1	75	1	75
Tennessee	12	2	275	2	280
Total	373	237	115,150	236	114,000

Production of Steel Companies for Own Use—Gross Tons

	Total Iron, Spiegel and Ferro		Spiegeleisen and Ferromanganese*			
	1925	1926	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,692,537	2,599,876	23,578	5,418	29,129	7,746
Feb.	2,539,785	2,272,150	18,184	4,910	22,309	7,084
Mar.	2,812,995	2,661,092	20,062	5,449	24,064	7,339
Apr.	2,514,828	2,677,094	21,448	5,341	24,134	7,051
May	2,306,887	.....	22,679	5,294	.....	.....
June	2,113,566	.....	19,836	4,972	.....	.....
½ year	14,980,598	.....	125,787	31,384	.....	.....
July	2,037,160	.....	16,614	5,074	.....	.....
Aug.	2,124,439	.....	18,867	4,939	.....	.....
Sept.	2,109,205	.....	18,381	5,162	.....	.....
Oct.	2,370,382	.....	21,421	5,071	.....	.....
Nov.	2,317,888	.....	25,490	6,375	.....	.....
Dec.	2,528,120	.....	26,072	7,756	.....	.....
Year	28,467,792	.....	252,632	65,761	.....	.....

*Includes output of merchant furnaces.

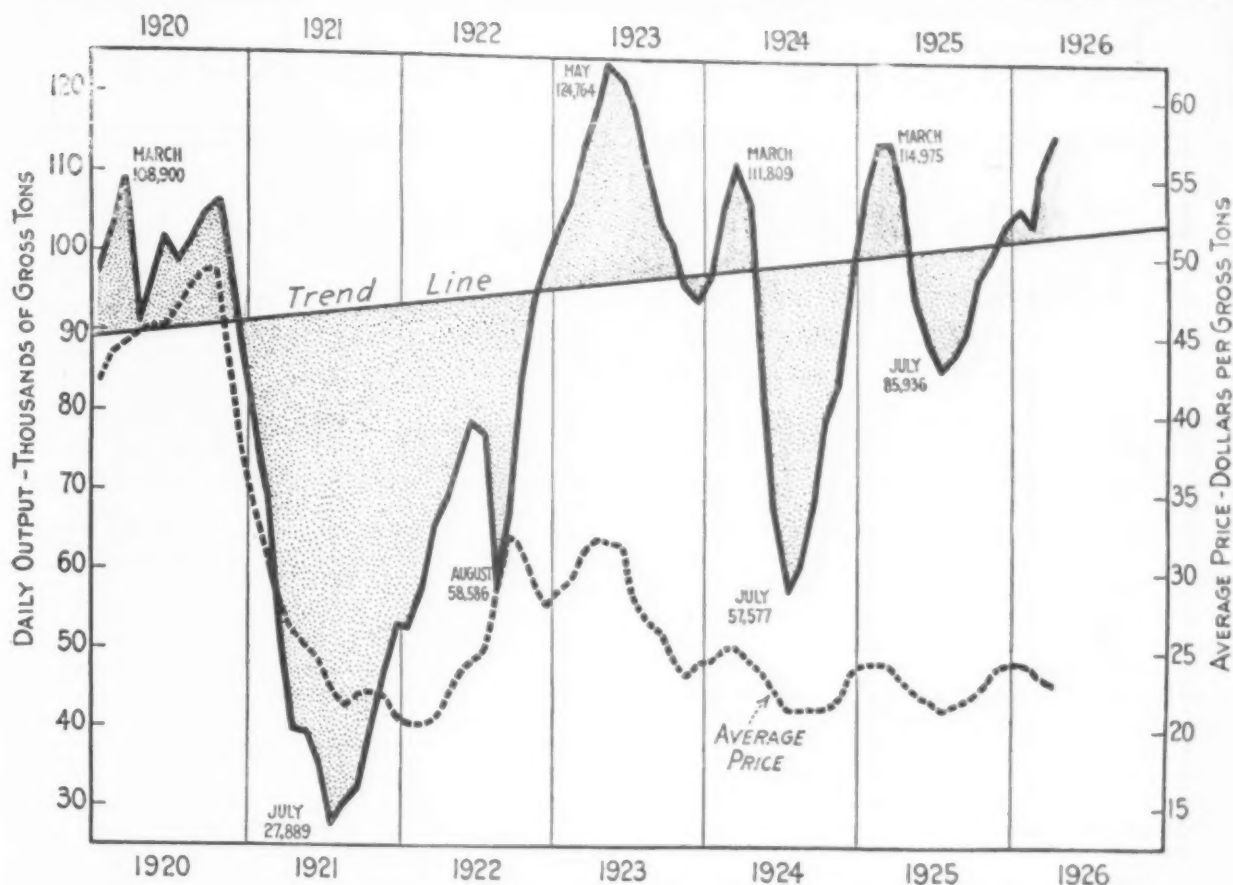
Production of Coke and Anthracite Pig Iron in United States
by Months, Beginning Jan. 1, 1924—Gross Tons

	1924	1925	1926
Jan.	3,018,890	3,370,336	3,316,201
Feb.	3,074,757	3,214,143	2,923,415
Mar.	3,466,086	3,564,247	3,441,986
Apr.	3,233,428	3,258,958	3,450,122
4 months	12,793,161	13,407,684	13,131,724
May	2,615,110	2,930,807	.....
June	2,026,221	2,673,457	.....
½ year	17,434,492	19,011,948	.....
July	1,784,899	2,664,024	.....
Aug.	1,887,145	2,704,476	.....
Sept.	2,053,264	2,726,198	.....
Oct.	2,477,127	3,023,370	.....
Nov.	2,509,673	3,023,006	.....
Dec.	2,961,702	3,250,448	.....
Year*	31,108,302	36,403,470	.....

*These totals do not include charcoal pig iron. The 1925 production of this iron was 196,164 tons.

Daily Average Production of Coke and Anthracite Pig Iron in
the United States by Months Since Jan. 1, 1922—Gross Tons

	1922	1923	1924	1925	1926
Jan.	53,063	104,181	97,384	108,720	106,974
Feb.	58,214	106,935	106,026	114,791	104,408
Mar.	65,675	113,673	111,809	114,975	111,032
Apr.	69,070	118,324	107,781	108,632	115,004
May	74,409	124,764	84,358	94,542	.....
June	78,701	122,548	67,541	89,115	.....
½ year	66,578	115,147	95,794	105,039	.....
July	77,592	118,656	95,777	85,936	.....
Aug.	58,586	111,274	60,875	87,241	.....
Sept.	67,791	104,184	68,442	90,873	.....
Oct.	85,092	101,586	79,907	97,528	.....
Nov.	94,990	96,476	83,656	100,767	.....
Dec.	99,577	94,225	95,539	104,853	.....
Year	73,645	109,713	85,075	99,735	.....



Daily Pig Iron Output in April About 3.6 Per Cent More Than in March; Prices Slightly Lower

Inclined line represents the gradually increasing theoretical needs of the country, and shows that production is now above the so-called normal. Dotted line represents the average price in dollars per gross ton of No. 2 Southern at Cincinnati, No. 2 at Chicago and No. 2X at Philadelphia

dependent steel and merchant stacks respectively. Three furnaces of the Steel Corporation and 2 independent steel company stacks were shut down.

Manganese Alloy Output

The ferromanganese production in April was 24,134 tons, a slight increase over March and the second largest this year. The spiegeleisen output last month was 7051 tons or next to the largest this year.

Furnaces Blown In and Out

Among the furnaces blown in during April were the following: One Duquesne and one Edgar Thomson of the Carnegie Steel Co. in the Pittsburgh district; the Claire furnace and one Shenango furnace in the Shenango Valley; the Top Mill furnace of the Wheeling Steel Corporation in the Wheeling district, and B furnace of the Youngstown Sheet & Tube Co. in the Mahoning Valley.

Among the furnaces blown out or banked during April were the following: A furnace at the Steelton plant of the Bethlehem Steel Corporation in the Lower Susquehanna Valley; one Carrie, one Edgar Thomson and one Lucy furnace of the Carnegie Steel Co. in the Pittsburgh district and B furnace at the Cambria plant of the Bethlehem Steel Corporation at Bethlehem, Pa.

A motion picture film showing the use of welding in structural work has been prepared by the Lincoln Electric Co., Cleveland, from photographs taken during actual construction work. Copies of the film will be supplied to technical and other societies without charge through the John B. Abell organization, 637 Union Trust Building, Cleveland.

Export Possibilities Because of British Strike

YOUNGSTOWN, May 4.—Unfilled orders of the Youngstown Sheet & Tube Co. are 20 per cent above the low level of the year, reached about Feb. 1, states President James A. Campbell. He believes there will be some diversion of steel tonnage to this country from British makers because of industrial suspension there incident to the strike, especially sizable Japanese tonnages.

Steel Institute Directors

At the annual meeting of members of the American Iron and Steel Institute for the election of directors, held in New York on April 30, the following were re-elected for the ensuing three years: L. E. Block, A. C. Dinkey, James A. Farrell, Elbert H. Gary, Howard M. Hanna, Ross McMaster, Charles M. Schwab and Horace S. Wilkinson.

The International Oxygen Co., Newark, N. J., will erect six oxygen plants, two acetylene plants, one welding plant, two welding schools and a number of welding establishments in the Soviet Union within the next three years, according to an announcement made today by the Russian Information Bureau.

Only one lost time accident in April was the record of the Yorkville, Ohio, tin plate plant of the Wheeling Steel Corporation. The plant employs 1700 men.

Iron and Steel Markets

Imports of British Pig Iron Cut Off

Stiffening in Coke If Strike Is Prolonged—April Pig Iron
Output Largest in Nearly Three Years—
Lessened Steel Production

HOW the stopping of the wheels of British industry will affect markets here is widely discussed in the steel trade, but thus far without tangible developments. British makers sent 53,000 tons of pig iron to this country in the first quarter of the year, and shipments kept up in April. The checking of this movement has caused eastern Pennsylvania producers to take a firmer stand at \$22 a ton, whereas recently a 50c. concession had appeared.

Shipments of coal from the United States to Italy, Scandinavia and other countries supplied by Great Britain are probable should the strike promise to run into weeks. The possibility of an advance in coal, and thus in coke, is also entering into the calculations of some producers of pig iron.

Continental semi-finished steel has been entering Great Britain in large quantities. The closing down of British rolling mills will put an end to such imports. While Continental steel works can market little semi-finished steel in the United States, they might be able to increase somewhat their exports of bars, structural steel and wire products to Atlantic and Gulf ports.

April pig iron output, with a daily rate 4000 tons more than that of March, represents the peak for the year thus far, even though for steel ingots the April figures, which will be made up in a few days, are expected to show a measurable decline from the record rate of March.

At 3,450,122 tons, or 115,004 tons a day, last month's production of iron for 30 days compares with 3,441,986 tons in March, or 111,032 tons a day. Six furnaces blew in and five furnaces blew out. The 237 furnaces active May 1 had a capacity of 115,150 tons a day, against 114,000 tons for the 236 furnaces in blast on April 1. Last month's output was the largest since July, 1923.

The steel companies showed a net loss of one blast furnace in April, and the merchant furnaces a gain of two. In view of a somewhat less production of ingots the steel companies are expected to put out a few blast furnaces this month.

The rate at which new business is coming to the steel mills has changed but little in the past week. In the lines most affected by weather conditions for the greater part of April there is improvement. The wire movement has been disappointing, and some of the larger producers are running at little over 50 per cent.

Tubular mills continue to show an 80 per cent operation. It develops that the Continental Oil Co. is back of the proposed 450-mile gas line that is to run from Amarillo, Tex., to Denver. For a 54-mile line in Texas 4-in. and 6-in. pipe is wanted, and in Illinois a 20,000-ton inquiry is pending.

Plates and structural shapes have declined \$1 a

ton at Birmingham. In the Central West there are some indications that plate prices have held better than those for shapes. At Chicago 35,000 tons of tank material is under inquiry.

Weakness in sheets is more general, but with no such yielding of prices as was widespread one year ago.

Sentiment in the automobile industry shows improvement. Two manufacturers that have held back shipments are now taking more steel. Present promise for May production of cars is up to the April average.

In the Central West some metal-working industries apart from the motor car field are on a production rate exceeding that of incoming orders.

The reported 45,000-ton rail order from the Southern Railway is not a new contract, this road having placed a round tonnage early in the year. Chicago mills still have 35,000 tons of new inquiry before them.

Japan has placed some 15,000 tons of rails with the United States Steel Products Co., mostly for the South Manchuria railroad. On rails and track material for Brazil, a European mill was 9 per cent under the low American bid.

Structural awards of 31,000 tons include several fair-sized projects in New York, the largest of which is a Broadway office building, 6500 tons. A Baltimore company will fabricate a gas holder for California requiring 3000 tons of plates. A gas company office building in New York, up for bids, will take 7000 tons. Tanks for Los Angeles represent 3100 tons and a water pipe line in the Philippines, on which German interests had the low bid for the general contract, calls for 3200 tons of plates. Bids are being taken on 2500 tons of reinforcing bars for a General Electric Co. manufacturing plant to be built in Philadelphia.

Concessions on concrete reinforcing bars are reported in connection with Eastern work.

The Texas & Pacific has ordered 300 automobile cars. Belgium got an order from South Africa for 500 cars on which American builders had figured. The Rock Island has bought 15 locomotives and the Reading five.

Expectations of betterment in the castings industry are shown by sales reported by manufacturers of foundry equipment. Sales for the first quarter of the year amounted to \$1,370,000 against \$1,101,000 for the first quarter of 1925 and \$1,080,000 for the first quarter of 1924. March proved the best month in over two years, except for last August.

For four successive weeks THE IRON AGE composite price for pig iron has held at \$20.46 per ton and that for finished steel at 2.439c. per lb. Both are less than 1 per cent below their respective prices of one year ago.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous
For Early Delivery

Pig Iron, Per Gross Ton:	May 4, 1926	Apr. 27, 1926	Apr. 6, 1926	May 5, 1925
No. 2X, Philadelphia...	\$23.26	\$23.26	\$23.26	\$21.76
No. 2 Valley Furnace...	19.00	19.00	19.00	20.00
No. 2, Southern, Cin'ti...	25.69	25.69	25.69	24.05
No. 2, Birmingham, Ala...	22.00	22.00	22.00	20.00
No. 2 foundry, Chicago*	22.00	22.00	22.00	22.00
Basic, del'd, eastern Pa...	21.75	21.75	21.75	21.00
Basic, Valley furnace...	18.50	18.50	19.00	20.00
Valley Bessemer del. P'gh.	21.26	21.26	21.76	22.76
Malleable, Chicago*	22.00	22.00	22.00	22.00
Malleable, Valley	19.00	19.00	20.50	20.00
Gray forge, Pittsburgh...	20.26	20.26	20.76	21.26
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.04
Ferromanganese, furnace...	88.00	88.00	88.00	115.00

Rails, Billets, etc., Per Gross Ton:

O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill	32.00	32.00	34.00	39.20
Bess. billets, Pittsburgh...	35.00	35.00	35.00	35.50
O.-h. billets, Pittsburgh...	35.00	35.00	35.00	35.50
O.-h. sheet bars, P'gh.	36.00	36.00	36.00	37.00
Forging billets, base, P'gh.	40.00	40.00	40.00	40.50
O.-h. billets, Phila.	40.30	40.30	40.30	41.17
Wire rods, Pittsburgh...	45.00	45.00	45.00	46.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.00

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.22	2.22	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.10
Steel bars, Pittsburgh...	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh...	1.90	1.90	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.20
Tank plates, New York	2.24	2.24	2.24	2.24
Beams, Pittsburgh	1.90	1.90	1.90	2.00
Beams, Chicago	2.10	2.10	2.10	2.20
Beams, New York	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh...	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	May 4, 1926	Apr. 27, 1926	Apr. 6, 1926	May 5, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.25	3.25	3.25	3.20
Sheets, black, No. 28, Chi-				
cago dist. mill.	3.35	3.35	3.45	3.40
Sheets, galv., No. 28, P'gh.	4.50	4.50	4.50	4.30
Sheets, galv., No. 28, Chi-				
cago dist. mill.	4.70	4.70	4.70	4.50
Sheets, blue, 9 & 10, P'gh.	2.40	2.40	2.50	2.40
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.	2.60	2.60	2.60	2.50
Wire nails, Pittsburgh...	2.65	2.65	2.65	2.75
Wire nails, Chicago dist.				
mill	2.70	2.70	2.70	2.85
Plain wire, Pittsburgh...	2.50	2.50	2.50	2.50
Plain wire, Chicago dist.				
mill	2.55	2.55	2.55	2.60
Barbed wire, galv., P'gh.	3.35	3.35	3.35	3.45
Barbed wire, galv., Chi-				
cago dist. mill.	3.40	3.40	3.40	3.55
Tin plate, 100 lb. box, P'gh.	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:

Carwheels, Chicago	\$15.50	\$16.00	\$16.50	\$16.00
Carwheels, Philadelphia	17.50	17.50	17.50	17.00
Heavy steel scrap, P'gh.	16.00	16.00	17.00	16.00
Heavy steel scrap, Phila.	15.50	15.50	16.50	14.50
Heavy steel scrap, Ch'go.	12.25	12.50	13.75	14.75
No. 1 cast, Pittsburgh	16.50	16.50	16.50	17.50
No. 1 cast, Philadelphia	17.50	17.50	17.50	17.00
No. 1 cast, Ch'go (net ton)	16.00	16.00	16.25	17.00
No. 1 RR. wrot. Phila.	17.50	17.50	17.50	17.50
No. 1 RR. wrot. Ch'go (net)	11.25	12.00	12.75	13.00

Coke, Connellsville,

Per Net Ton at Oven:				
Furnace coke, prompt	\$3.00	\$3.00	\$3.00	\$3.00
Foundry coke, prompt	4.00	4.00	4.25	4.00

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.00	14.12½	14.12½	13.75
Electrolytic copper, refinery	13.62½	13.75	13.75	13.37½
Zinc, St. Louis	6.70	6.95	7.20	6.92½
Zinc, New York	7.05	7.30	7.55	7.27½
Lead, St. Louis	7.60	7.60	8.00	7.45
Lead, New York	7.85	7.85	8.25	7.75
Tin (Strait), New York	64.25	63.75	63.75	54.62½
Antimony (Asiatic), N. Y.	12.50	17.00	18.00	13.00

Pittsburgh

Steel Demand Slowing Up, But Orders from Motor Car Industry Gain

PITTSBURGH, May 4.—In a steel market showing a general tendency toward a slowing up of demand, it is interesting to note that the lines in which business had been affected by weather conditions are showing improvement. Demands of jobbers upon manufacturers of wire products have quickened materially, following a few days of really good weather, and evidently sales of automobiles have improved to a point where builders feel safe in taking out a little more steel, since there has been some increase in that direction, notably on the part of one large producer who has been rather sparing with specifications in the recent past.

While it would be an exaggeration to call steel business as a whole good, it would be equally wide of the mark to say that it is poor. The industry has made and shipped a very large amount of steel in the first four months of the year, and while it is generally reported that stocks of steel in second hands are small, there is not the same cheerful report about the movement of steel articles into consumption. That condition, of course, intensifies the disposition of consumers to keep down their inventories and this is reflected back to plant operations, which are also affected by the fact that a very large amount of completed business in rails and structural steel is not being replaced. Ingot production in the Youngstown district has further receded since a week ago and is now

about 70 per cent of capacity. A good deal of steel in that district goes for sheets and that product is moving slowly. Pittsburgh and Johnstown operations also seem to be easing up slightly, so that 75 per cent is probably a liberal estimate of current output of raw steel.

Greater weakness has developed in the sheet market, and regular quotations, those that would be named first against an inquiry, are down \$2 a ton with most makers. Cold-rolled strips appear to have steadied at 3.75c., base Pittsburgh or Cleveland, after dipping under that price on some attractive business in the West. There are suggestions that lower prices than 1.90c., base Pittsburgh, on plates have been made, but local makers insist that they have not made any concessions. In plates, shapes and bars, however, competition for business is sharp, and while prices are being maintained on the ordinary tonnages, those of an attractive character are probably getting special consideration.

Pig Iron.—Total sales of pig iron in this market in the past week are estimated at about 3000 tons, and about half of that tonnage is accounted for in two sales, one of 1000 tons of Bessemer iron and one of 600 tons of foundry iron. The foundry iron was taken by a radiator company with a plant just south of the Pittsburgh district and, it is reported, paid \$19, Valley furnace, for No. 2 grade. There was one sale of 150 tons of Bessemer iron to a local melter which, like the larger lot, went at \$19.50, Valley furnace. Sales, otherwise, have consisted entirely of carload lots, but in all cases were at recent prices. There is no broad interest in the market on the part of consumers, who generally seem to have an ample supply of iron in stock or un-

der contract to meet their requirements for the present quarter. The Carnegie Steel Co. has taken off one of its Carrie furnaces since a week ago, and one stack of the Bethlehem Steel Co. at Johnstown has gone on the idle list. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces in April \$19.617, against \$21 in March, and of basic iron \$18.90, compared with \$20 in March.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$18.50
Bessemer	19.50
Gray forge	18.50
No. 2 foundry	19.00
No. 3 foundry	18.50
Malleable	\$19.00 to 19.50
Low phosphorus, copper free....	27.50

Ferroalloys.—Spiegeleisen of 20 per cent manganese content is now available, and sales agents of the leading commercial producer now can take orders without a recent restriction which was made necessary by the fact that contracts are on a maximum and minimum quantity basis. The usual method of figuring available tonnage is to first deduct the maximum tonnage in contracts, but regular customers have not taken out the maximum tonnage and, consequently, there is a supply. Prices are given on page 1301.

Semi-Finished Steel.—The market here is very quiet, with almost no new business and with consumers very sparing in their specifications against contracts. In view of the weakness of sheets it is probably true that makers who buy their steel would like to have cheaper supplies, but it is said that only one mill in this district is making an effort in that direction, while others are content to take the sheet bars as they require them at first quarter prices. A dip in sheet bar prices would only serve further to weaken sheet prices. Billet and slab prices also are holding at recent levels, despite moderate specifications on unshipped tonnages. Wire rods and skelp remain at recent prices, although not moving with much snap. Prices are given on page 1301.

Wire Products.—The effect of the weather upon business is evident from the fact that a few warm days here have been followed by a material increase in at least the number of orders taken by makers in this and nearby districts. This is a reflection of a larger movement into channels of consumption and also of the fact that jobbers have not been carrying large stocks and are obliged to fall back on the mills with every quickening in consuming demands. April was a disappointment in point of shipments into consumption. Evidently manufacturers now figure that they cannot count on much business developing in the agricultural districts this spring, and they are curtailing mill operations in an effort to keep production and consumption in alignment. Present engagement of capacity is between 50 and 55 per cent of capacity, as compared with 60 to 65 per cent about six weeks ago. Prices are steady. They are given on page 1299.

Rails and Track Supplies.—There is still wide variation in light rail prices. Some producers of billet rails still have a minimum quotation of \$34 per gross

ton and report small sales at that price, but on a few worth-while tonnages recently presented the successful bidder had to go to \$32 to get the order. In this district orders usually are for carload lots, as the tendency of coal mine operation, the principal outlet for light rails, is downward. Not much activity is observed in track accessories. Recent prices are holding. They are given on page 1301.

Tubular Goods.—This division of the industry constitutes one of its really bright spots. Very good demand is still reported for lapwelded pipe, and the call for the butt welded sizes is growing more urgent. Construction work has been helped by favorable weather, and mills are pressed for prompt deliveries of the sizes of pipe that go into buildings. The oil situation is encouraging drilling and development work, and more pipe lines are coming up for quotation. The sponsor for the 450-mile gas line to run from Amarillo, Tex., to Denver, reported in THE IRON AGE, April 15, is the Continental Oil Co., a Standard Oil Co. subsidiary. The Gulf Refining Co. is reported as likely to erect a refinery at Amarillo, which would mean a considerable tonnage of pipe line for that company. There is also an inquiry for 54 miles of 4 and 6-in. pipe for a line to be laid by C. O. Moore, Cross Plains, Tex. The Illinois line of the Roxana Petroleum Corporation, St. Louis, amounting to 20,000 tons of 8-in. pipe, is still pending. There is still 80 per cent engagement of pipe mills in this and nearby districts, with lapweld mills, notably those on the larger sizes, particularly well occupied. There is no change in the boiler tube market; there is a fairly good demand, but it is not strong enough to assist prices to a profitable level. Discounts are given on page 1299.

Sheets.—Prices continue to weaken and what were recently regarded as inside prices, or those made on especially attractive business, have become the regular quotations of most makers. The American Sheet & Tin Plate Co.'s quotations are still reported as 3.35c., base Pittsburgh, for black, 4.60c., base, for galvanized, and 2.50c., base, for blue annealed. Most of the independent companies are now naming 3.25c. for black, 4.50c. for galvanized and 2.40c. for blue annealed and, except on the last-named grade, have even lower prices for attractive business. Weakness in spelter is having a depressing influence on galvanized sheet prices. Trading is quiet, but many incline to the belief that this is a natural condition following four months of extremely heavy shipments, which for the American Sheet & Tin Plate Co. were the largest in its history for such a period. While the market is weak, there is no such demoralization as there was at this time last year. Then there was a strong effort by several producers to operate at a rate calculated to reduce costs sufficiently to permit profits at the very low prices then ruling. The result was oversupply and increased price weakness. The tendency to produce in excess of real requirements is not nearly so strong this year. Present operations of sheet mills range from 70 to 75 per cent of capacity. Prices are given on page 1299.

Tin Plate.—In the absence of any recession in tin

THE IRON AGE Composite Prices

Finished Steel May 4, 1926, 2.439c. Per Lb.

One week ago.....	2.439c.
One month ago.....	2.439c.
One year ago.....	2.460c.
10-year pre-war average.....	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.	Jan. 5:	2.424c.	Feb. 9
1925	2.560c.	Jan. 6:	2.396c.	Aug. 18
1924	2.789c.	Jan. 15:	2.460c.	Oct. 14
1923	2.824c.	April 24:	2.446c.	Jan. 2

Pig Iron May 4, 1926, \$20.46 Per Gross Ton

One week ago.....	\$20.46
One month ago.....	20.71
One year ago.....	20.63
10-year pre-war average.....	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	\$21.54,	Jan. 5:	\$20.46,	April 13
1925	22.50,	Jan. 13:	18.96,	July 7
1924	22.88,	Feb. 26:	19.21,	Nov. 3
1923	30.86,	March 20:	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

Base Per Lb.

Each, Pittsburgh mills.....	2.00c.
Each, Chicago.....	2.10c.
Each, Philadelphia.....	2.32c.
Each, New York.....	2.34c.
Each, Cleveland.....	2.19c.
Each, Birmingham.....	2.15c. to 2.25c.
Each, Pacific ports.....	2.35c.
Each, San Francisco mills.....	2.35c. to 2.40c.

Billet Steel Reinforcing

Each, Pittsburgh mills.....	2.00c.
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Rail Steel

Each, mill.....	1.80c. to 1.90c.
Each, Chicago.....	2.00c.

Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	3.00c.
Common iron, del'd Philadelphia.....	2.22c.
Common iron, del'd New York.....	2.24c.

Tank Plates

Base Per Lb.

Each, Pittsburgh mill.....	1.90c.
Each, Chicago.....	2.10c.
Each, Birmingham.....	2.00c. to 2.10c.
Each, Cleveland.....	2.09c.
Each, Philadelphia.....	2.22c.
Each, New York.....	2.24c.
Each, Pacific ports.....	2.25c. to 2.30c.

Structural Shapes

Base Per Lb.

Each, Pittsburgh mill.....	1.90c.
Each, Chicago.....	2.10c.
Each, Birmingham.....	2.00c. to 2.05c.
Each, Cleveland.....	2.09c. to 2.19c.
Each, Philadelphia.....	2.12c. to 2.22c.
Each, New York.....	2.19c. to 2.24c.
Each, Pacific ports.....	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

Base Per Lb.

All gages, narrower than 6 in., P'gh.....	2.50c.
All gages, 6 in. and wider, P'gh.....	2.30c.
All gages, 6 in. and narrower, Chicago.....	2.60c.
All gages, wider than 6 in., Chicago.....	2.50c.

Cold-Finished Steel

Base Per Lb.

Bars, f.o.b. Pittsburgh mills.....	2.50c.
Bars, f.o.b. Chicago.....	2.50c.
Bars, Cleveland.....	2.55c.
Shafting, ground, f.o.b. mill.....	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills.....	3.75c.
Strips, f.o.b. Cleveland mills.....	3.75c.
Strips, delivered Chicago.....	4.20c.
Strips, f.o.b. Worcester mills.....	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Base Per Keg

Wire nails.....	\$2.65
Galv'd nails, 1-in. and longer.....	4.65
Galv'd nails, shorter than 1 in.....	4.90
Galvanized staples.....	3.35
Polished staples.....	3.10
Cement coated nails.....	2.65

Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire.....	2.65
Spring wire.....	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, galv'd.....	3.35
Barbed wire, painted.....	3.10

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

Woven Wire Fence

Base to Retailers Per Net Ton

F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

Sheets

Blue Annealed

Base Per Lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....	2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills.....	2.60c.
Nos. 9 and 10, del'd Philadelphia.....	2.72c. to 2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh.....	3.15c. to 3.25c.
No. 28, f.o.b. Ch'go dist. mill.....	3.35c. to 3.45c.
No. 28, del'd Phila'phia.....	3.52c. to 3.57c.

Galvanized

No. 28, f.o.b. Pittsburgh.....	4.40c. to 4.50c.
No. 28, f.o.b. Ch'go dist. mills.....	4.70c.
No. 28, del'd Philadelphia.....	4.72c. to 4.82c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	3.15c. to 3.25c.
No. 28, f.o.b. Chicago dist. mill.....	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh.....	4.30c.
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Long Terns

No. 28, 8-lb. coating, f.o.b. mill.....	4.85c.
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Tin Plate

Per Base Box

Standard cokes, f.o.b. P'gh district mills.....	\$5.50
Standard cokes, f.o.b. Gary and Elwood.....	5.60
Ind.....	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per package, 20 x 28 in.)

8-lb. coating, 100.....	20-lb. coating I.C. \$16.20
lb. base..... \$11.40	25-lb. coating I.C. 17.90
8-lb. coating I.C. 11.70	30-lb. coating I.C. 19.45
15-lb. coating I.C. 14.85	40-lb. coating I.C. 21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers	Base Per 100 Lb.
2100* (1/2% Nickel, 0.10% to 0.20% Carbon)	\$3.20 to \$3.25
2300 (3 1/2% Nickel)	4.50
2500 (5% Nickel)	5.70 to 5.80
3100 (Nickel Chromium)	3.50
3200 (Nickel Chromium)	5.00 to 5.25
3300 (Nickel Chromium)	7.00 to 7.25
3400 (Nickel Chromium)	6.25 to 6.50
5100 (Chromium Steel)	3.40 to 3.50
5200* (Chromium Steel)	7.00 to 7.50
6100 (Chrom. Vanadium bars)	4.30 to 4.40
6100 (Chrom. Vanad. spring steel)	3.80
9250 (Silicon Manganese spring steel)	3.20 to 3.25
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.30 to 4.40
Chromium Molybdenum bars (0.80-1.10 Chrom., 0.25-0.40 Molyb.)	4.25 to 4.35
Chromium Molybdenum bars (0.50-0.70 Chrom., 0.15-0.25 Molyb.)	3.40 to 3.50
Chromium Molybdenum spring steel (1-1.25 Chrom., 0.30-0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2 in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

Per Gross Ton

Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	\$32.00 to 34.00
Light (from rail steel), f.o.b. mill.....	31.00 to 32.00
Light (from billets), f.o.b. Ch'go mill.....	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

Base Per 100 Lb.

Spikes, 5/8 in. and larger.....	\$2.80 to \$3.00
Spikes, 1/2 in. and smaller.....	2.85 to 3.25
Spikes, boat and barge.....	3.25
Track bolts, all sizes.....	4.00 to 4.50
Tie plates, steel.....	2.25 to 2.35
Angle bars.....	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel	Iron
inches	Black Galv.
1/8.....	45 19 1/2 1/4 to 3/8..... +11 +39
1/4.....	51 25 1/2 1/2..... 22 2
3/8.....	56 42 1/2 3/4..... 28 11
1/2.....	60 48 1/2 1 to 1 1/2..... 30 12
3/4.....	62 50 1/2.....

Lap Weld

2.....	55 43 1/2 2..... 23 7
2 1/2 to 6.....	59 47 1/2 2 1/2..... 26 11
7 and 8.....	56 43 1/2 3 to 6..... 28 13
9 and 10.....	54 41 1/2 7 to 12..... 26 11
11 and 12.....	53 40 1/2.....

Butt Weld, extra strong, plain ends

1/8.....	41 24 1/2 1/4 to 3/8..... +19 +54
1/4 to 3/8.....	47 30 1/2 1/2..... 21 7
1/2.....	53 42 1/2 3/4..... 28 12
3/4.....	58 47 1/2 1 to 1 1/2..... 30 14
1 to 1 1/2.....	60 49 1/2.....
2 to 3.....	61 50 1/2.....

Lap Weld, extra strong, plain ends

2.....	53 42 1/2 2..... 23 9
2 1/2 to 4.....	57 46 1/2 2 1/2 to 4..... 29 15
4 1/2 to 6.....	56 45 1/2 4 1/2 to 6..... 28 14
7 to 8.....	52 39 1/2 7 to 8..... 21 7
9 and 10.....	45 32 1/2 9 to 12..... 16 2
11 and 12.....	44 31 1/2.....

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in.....	27 1 1/2 in..... +18
2 1/2 to 2 3/4 in.....	37 1 3/4 to 1 7/8 in..... + 8
3 in.....	40 2 to 2 1/4 in..... 2
3 1/4 to 3 3/4 in.....	42 1/2 2 1/2 to 3 in..... 7
4 to 13 in.....	46 3 3/4 to 4 1/2 in..... 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.....	60 3 in..... 45
1 1/4 to 1 1/2 in.....	62 3 1/4 to 3 1/2 in..... 47
1 3/4 in.....	86 4 in..... 50
2 to 2 1/4 in.....	81 4 1/2, 5 and 6 in..... 45
2 1/2 to 2 3/4 in.....	39.....

Hot Rolled

2 and 2 1/4 in.....	34 3 1/4 and 3 1/2 in..... 50
2 1/2 and 2 3/4 in.....	42 4 in..... 58
3 in.....	48 4 1/2, 5 and 6 in..... 48

Less cartloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base.....	55
Carbon, 0.30% to 0.40%, base.....	50
Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.	

mill operations in this and nearby districts, the general average of plant engagement is over 90 per cent, but new business is light and it is doubtful whether the mills can maintain their present gait beyond this month. Container manufacturers are well stocked with tin plate and cans and have filled up packers with cans, while packing crop prospects are somewhat dimmed by the late spring and the delay in getting the crops into the ground. Specifications against July shipments are due May 15, and their size will depend on the weather and the way the crops shape up in the next few weeks. There is a good demand for general line tin plate.

Cold-Finished Steel Bars and Shafting.—Demand is steady enough and is fairly satisfactory in the aggregate, but important consumers are not inclined to carry more than moderate inventories, and it is necessary for producers to have the stocks and to be prepared for frequent mill scheduling to meet the demand. It is a sort of demand that in former times brought out price concessions, but makers seems to have adjusted themselves to the new order and there is a good deal of firmness to the price of 2.50c., base Pittsburgh, on ordinary tonnages.

Steel and Iron Bars.—Business in steel bars is steady enough, but buyers are restricting their purchases closely to their actual requirements because most mills are making very prompt deliveries on practically all sizes. Iron bars are holding at recent prices, although the demand is only fair.

Structural Material.—This line is much quieter than during the first three and a half months of the year, because the structural shops have completed and shipped more tonnage than they have received, and while much fabricated steel business is pending, there is much deliberation about awards. The ruling price on large structural shapes is 1.90c., base Pittsburgh.

Plates.—Makers are still holding firmly to 1.90c., base Pittsburgh, on ordinary tonnages, despite reports of lower quotations from outside mills. Some contracts appear to have been written at lower prices before the market stiffened to its present level, and as they expire buyers are exerting considerable pressure to renew them without paying any advance. While the prospect is good for plates, so far as large outside-diameter pipe and river barges are concerned, the lower rate of car shop operations is being felt.

Hot-Rolled Flats.—Users are not buying very far ahead of their actual requirements, but these are sufficient to keep them in the market almost constantly. April business of local producers was not much smaller than in March. There is close observance of prices, which are regarded as moderate in relation to costs and by comparison with sheets and other competing material.

Cold Rolled Strips.—The market here seems to have settled generally to 3.75c., base Pittsburgh. Most business carrying a higher price, and this chiefly in the East, has been written down to that figure.

Bolts, Nuts and Rivets.—Makers in this district are finding business somewhat quieter in bolts and nuts than during the first quarter and early April. Sales effort is growing stronger, but not to the extent of price cutting. A new standard list of prices of bolts and

nuts is in preparation, but it is said that it will not be completed until late this year. Rivets are selling fairly well, but recent price irregularity continues. Prices and discounts are given on page 1301.

Warehouse Business.—Prices of steel out of local warehouses generally are holding at recent levels except on sheets, which are down in keeping with the fact that most independent producers have cut quotations \$2 a ton.

Fluorspar.—There is some interest in gravel spar, with a few inquiries running to as much as 500 tons. Leading domestic producers still are offering 85 and 5 per cent material at \$18, f.o.b. mine, but this price is not easily obtained except on small lots, and the smaller producers are quoting as low as \$17. It is reported here that foreign fluorspar has been coming in rather freely lately, but there are no suggestions of lower prices. There is much speculation here as to the effect of the British strike on shipments to this country.

Coke and Coal.—Spot coke is holding at the prices of the past few weeks, but it is not the size of the demand so much as regulation of output that gives the market its steadiness. There is all the spot furnace coke that is wanted at \$3 per net ton at ovens, and foundry coke is easily picked up at \$4 to \$4.50 for good brands. Beehive furnace coke has lost another source of outlet in the fact that the Jones & Laughlin Steel Corporation has completed and has in operation 60 Wilputte ovens at its South Side works and 122 Koppers-Becker ovens at its Aliquippa plant. These installations have an annual capacity of approximately 1,000,000 tons of coke, and with its other by-product capacity the company is now entirely self-contained. It is still a buyer's market in coal.

Old Material.—The market continues to weaken because consumers are not interested, and with Youngstown and Canton steel manufacturers holding up deliveries, a good deal of material is being pressed upon this market. There is also the factor of heavy railroad and automobile scrap offerings. In finding an outlet here for heavy melting steel that could not be shipped to Youngstown, dealers have not been able to get more than \$16, and a fair-sized tonnage was sold to a local melter at that figure. Some dealers are still asking \$16.50, but that is merely a quotation. Machine shop turnings sold in Detroit last week at \$7 per ton, equivalent to \$11.28, delivered Pittsburgh, and mixed borings and turnings and short shoveling turnings sold at \$8, or \$12.28 here, while compressed sheet scrap brought the equivalent of \$14.78, delivered Pittsburgh. The principal local user of machine shop turnings is bidding only \$10 for them, but dealers short of them are still paying more and the market is quotable on dealer purchases at \$11 to \$11.50. The most recent sale of compressed sheets was at \$15.50, but \$15 now seems to be all that can be obtained. Approximately 25,000 tons of scrap was sold in Detroit last week, and railroad offerings, including special lists, swelled the total offerings available to Pittsburgh and Ohio mills to close to 100,000 tons.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage)	4.25c.
Galvanized sheets (No. 28 gage)	5.50c.
Blue annealed sheets (No. 10 gage)	3.50c.
Cold-finished shafting and screw stock—	
Round and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Bolt	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	\$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

Per Gross Ton	
Heavy melting steel	\$16.00 to \$16.50
No. 1 cast, cupola size	16.50 to 17.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.00 to 18.50
Compressed sheet steel	15.00 to 15.50
Bundled sheets, sides and ends	14.00 to 14.50
Railroad knuckles and couplers	18.00 to 18.50
Railroad coil and leaf springs	18.00 to 18.50
Low phosphorus blooms and billet ends	20.00 to 20.50
Low phosphorus plates and other material	18.50 to 19.00
Low phosphorus punchings	18.50 to 19.00
Steel car axles	21.00 to 21.50
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	18.00 to 18.50
Machine shop turnings	11.00 to 11.50
Short shoveling turnings	12.00 to 12.50
Sheet bar crops	18.00 to 18.50
Heavy steel axle turnings	15.00 to 15.50
Short mixed borings and turnings	12.00 to 12.50
Heavy breakable cast	15.00 to 15.50
Cast iron borings	12.00 to 12.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	16.00 to 16.50
Malleable scrap	17.00 to 17.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over.....	\$35.00
Rolling, 2-in. and smaller.....	36.00
Forging, ordinary.....	40.00
Forging, guaranteed.....	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer.....	\$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger.....	\$35.00
6 in. x 2 in. and smaller.....	36.00

Ske'p

	Per Lb.
Grooved.....	1.90c.
Sheared.....	1.99c.
Universal.....	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base.....	\$45.00
Screw stock.....	\$5.00 per ton over base
Carbon 0.20% to 0.40%.....	3.00 per ton over base
Carbon 0.41% to 0.55%.....	5.00 per ton over base
Carbon 0.56% to 0.75%.....	7.50 per ton over base
Carbon over 0.75%.....	10.00 per ton over base
Acid.....	15.00 per ton over base

*Chicago mill base is \$46. Cleveland mill base, \$45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian.....	9.50c. to 10c.
Iron ore, Swedish, average 66% iron.....	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus.....	45c.
Manganese ore, Brazilian or Indian, nominal.....	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates.....	\$12.00 to \$13.00

Chrome ore, Indian basic, 48% Cr₂O₃, crude, c.i.f. Atlantic seaboard.....

Molybdenum ore, 85% concentrates of MoS₃, delivered.....

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt.....	\$3.00
Foundry, f.o.b. Connellsville prompt.....	4.50
Foundry, by-product, Ch'go ovens.....	9.75
Foundry, by-product, New England, del'd.....	12.50
Foundry, by-product, Newark or Jersey City, delivered.....	10.50 to 11.52
Foundry, Birmingham.....	5.00 to 5.50
Foundry, by-product, St. Louis or Granite City.....	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines.....	\$1.40 to \$1.90
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines.....	1.90 to 2.10
Steam slack, f.o.b. W. Pa. mines.....	1.30 to 1.40
Gas slack, f.o.b. W. Pa. mines.....	1.40 to 1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$88.00 to \$95.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	\$88.00 to 110.00

Spiegeleisen

	Per Gross Ton
Domestic, 19 to 21%.....	\$32.00 to \$34.00
Domestic, 16 to 19%.....	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton
50%.....	\$85.00
75%.....	145.00
	Per Gross Ton
10%.....	\$42.00
11%.....	42.00

Bessemer Ferrosilicon

	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace.....	\$33.00
10%.....	35.00
11%.....	35.00

Silvery Iron

	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace.....	\$25.50
6%.....	26.50
7%.....	27.50
8%.....	29.00
9%.....	29.00

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd.....	\$1.20
Ferromanganese, 4% carbon and up, 60 to 70% Cr ₂ , per lb. contained Cr, delivered.....	11.50c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.25 to \$4.00
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.50 to \$18.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$17.41 to \$18.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2 1/2% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay

	Per 1000 f.o.b. Works
High Duty.....	
Maryland.....	\$43.00 to \$46.00
Maryland.....	48.00 to 50.00
New Jersey.....	55.00 to 75.00
Ohio.....	43.00 to 46.00
Kentucky.....	43.00 to 45.00
Illinois.....	43.00 to 45.00
Missouri.....	40.00 to 43.00
Ground fire clay, per ton.....	6.50 to 7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania.....	\$40.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	\$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick

	Per Net Ton
Standard size.....	\$45.00 to \$48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads.....	60 and 10
Machine bolts, all sizes, cut threads.....	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads.....	50, 10 and 10
Carriage bolts, cut threads, all sizes.....	50 and 10
Eagle carriage bolts.....	65 and 10
Lag bolts.....	60, 10 and 10
Flow bolts, Nos. 3 and 7 heads.....	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, 3/8 x 4 in.....	45, 10 and 5
Larger and longer sizes.....	45, 10 and 5
Bolt ends with hot-pressed nuts.....	50, 10 and 10
Bolt ends with cold-pressed nuts.....	45, 10 and 5
Hot-pressed nuts, blank and tapped, square, 4.00c. per lb. off list	
Hot-pressed nuts, blank or tapped, hexagons, 4.40c. per lb. off list	
C.p.c. and t. square or hex. nuts, blank or tapped.....	4.10c. per lb. off list
Washers*.....	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.
The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-pressed nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
1/2 in. and smaller, U. S. S.....	80, 10 and 5
3/4 in. and larger, U. S. S.....	75, 10 and 5
Small sizes, S. A. E.....	80, 10, 10 and 5
S. A. E., 3/8 in. and larger.....	75, 10, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2 1/2
Tire bolts.....	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E. U.S.S.	Per 100 Net S.A.E. U.S.S.
1/4-in.....	\$0.44	\$0.44
3/8-in.....	0.515	0.515
1/2-in.....	0.62	0.66
3/4-in.....	0.79	0.90
1-in.....	1.01	1.05
1 1/4-in.....	1.38	1.42
1 1/2-in.....	1.70	1.73
3/4-in.....	2.35	2.40
1-in.....	3.60	3.60
1 1/4-in.....	5.65	5.80
1 1/2-in.....	8.90	8.90
1 3/4-in.....	12.60	13.10
2-in.....	18.35	18.35
2 1/2-in.....	21.00	21.00

Larger sizes.—Prices on application.

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Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh.....	\$2.50 to \$2.60
F.o.b. Cleveland.....	2.70
F.o.b. Chicago.....	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh.....	70 and 10
F.o.b. Cleveland.....	70 and 10
F.o.b. Chicago.....	70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws.....	80 and 10
Milled standard set screws, case hardened.....	80 and 5
Milled headless set screws, cut thread.....	80
Upset hex. head cap screws, U. S. S. thread.....	80, 10 and 10
Upset hex. cap screws, S.A.E. thread.....	80, 10 and 10
Upset set screws.....	80, 10 and 5
Milled studs.....	70 and 5

Chicago

Scrap Still Declining—Steel Specifications Lighter—New Furnace Blown In

CHICAGO, May 4.—Demand for bars, shapes and plates is steady, and the strength of these commodities is in the order named, with bars the most active. Inquiry, on the whole, is heavier, but buyers are not generally pressed for materials and new buying continues to diminish in volume. Specifications are lighter than shipments and are in about the same volume as during the previous week.

Blast furnace operations have been expanded by the blowing in on May 4 of the new 700-ton stack of the Inland Steel Co. The Steel Corporation is operating 11 furnaces at Gary, nine at South Chicago and one at Joliet, a total of 21 out of its 27 in this district. The Inland Steel Co. now has four stacks in blast, the Wisconsin Steel Works three and Youngstown Sheet & Tube Co. two, the total steel works furnaces now active being 30 out of 36.

Miscellaneous rail orders in this district total 3500 tons, and inquiry now before producers is not less than 35,000 tons.

Pig Iron.—Spot buying has improved, as gray iron foundries become more active. There is a growing interest in future iron, and several sizable inquiries are out for requirements extending well into the third quarter. The bulk of the buying, however, is for delivery through May and June. In sales and shipments April was smaller than the preceding month, but total shipments for the past seven months were the largest for any equal period in the history of the local trade. There is no evidence that stocks at the furnaces are accumulating to any marked extent and the fact that users continue to buy in small lots indicates that the average foundry is purchasing close to actual requirements. Orders to hold up shipments are infrequent and are not being received in greater number than for the past month or two. Northern foundry iron is steady at \$22, furnace. A melter in Indiana is inquiring for 500 tons of malleable iron for prompt delivery, and a user in western Michigan is asking for a like tonnage of that grade. Several spot carloads of 8 per cent silvery have been placed at \$27.50, base Jackson County, or \$32.29, delivered. A small tonnage of charcoal iron is being taken at \$26, base furnace, or \$29.04, delivered. The number of active merchant stacks in this district is unchanged, but the tonnage available for distribution has been somewhat reduced by the placing in operation this week of the new Chicago district plant of the Valley Mold & Iron Corporation, which is taking hot iron from the Federal furnaces.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	\$22.00
Northern No. 1 foundry, sil. 2.25 to 2.75	22.50
Malleable, not over 2.25 sil.	22.00
High phosphorus	22.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	28.04
Southern No. 2 (all rail)	\$27.01 to 28.01
Southern No. 2 (barge and rail)	26.18 to 27.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to 31.70
Silvery, sil. 8 per cent	32.29
Ferrosilicon, 14 to 16 per cent	45.79

Ferroalloys.—This market is comparatively quiet, and only a few scattered car lot sales of ferromanganese and spiegeleisen have been made at current quotations.

We quote 80 per cent ferromanganese, \$95.56, delivered Chicago; 50 per cent ferrosilicon, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$41.76, delivered Chicago.

Plates.—Thirty-five thousand tons of tank material is now on inquiry, and a fair portion of this is expected to be let within the week. New bookings in tanks total 1000 tons, and fresh inquiries call for 2000 tons. Another new project, a gas holder, will require

1000 tons. The original request for figures by the Roxana Petroleum Corporation has been revised and the inquiry now before the trade is for 7500 tons of plates for its proposed northern Indiana refinery. The Texas & Pacific this week placed 300 automobile cars, requiring 3000 tons of plates, shapes and bars, with the American Car & Foundry Co. This order closes the last railroad car inquiry of any note in this territory. Several railroads, such as the North Western, the Burlington and the Rock Island, still have fairly heavy repair programs under way. Mill schedules for universal mill plates are well in advance of those for sheared plates. The Chicago mill price on plates is still 2.10c., although there are indications that it is lacking in firmness.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Billets.—Local producers have booked 1000 tons of small billets at \$35 per gross ton, Chicago.

Sheets.—Demand for sheets from local mills shows a further decline. The general manufacturing trade continues to take a fair tonnage of blue annealed sheets, and the Chicago district mill base price of 2.60c. is steady. Mill schedules on this commodity range from four to six weeks. Demand for galvanized sheets for roofing purposes has failed to broaden out, and mills are operating on close schedules. The Chicago mill price of 4.70c. lacks strength. There is virtually no demand for black sheets, and the bulk of business now being taken is at 3.35c., base district mills.

Chicago delivered prices from mill are 3.40c. to 3.50c. for No. 28 black; 2.65c. for No. 10 blue annealed; 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Material.—In plain material new buying and specifications are well maintained and 2.10c., Chicago, remains the ruling mill price. Sizable tonnages are admittedly bringing less than this quotation, but for the general run of business this price is fairly steady. Demand from the structural shops in the immediate Chicago district is fair. Mill deliveries remain satisfactory, and fabricators are operating with low stocks and are ordering much of their material cut to length at the mills. Shops in outlying territory are not so busy as during the early part of April, and specifications from them are light. There is a growing feeling of uncertainty regarding the outcome of the building situation in Chicago. Several unions have signed agreements, but others are holding out for what the contractors believe are unreasonable terms. A settlement of the labor situation is believed by many to be necessary before much of the tonnage now pending will be contracted for.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bars.—The improvement noted in the demand for soft steel bars two weeks ago has carried well through the week now closing. Requirements of the manufacturing trade are well sustained, and specifications from that source are slightly better. Users appear to be well satisfied with service obtained from mills, and buying continues along conservative lines. Demand for reinforcing bars is heavier and producers look for still further improvement, as contractors get under way with some of the larger projects. Chicago mills are quoting 2.10c. on the general run of bar business, but this price has failed to gather strength during the week. Alloy steel bar production in this district is at 90 per cent of capacity, with prices steady. Iron bar specifications are light, and mills are again operating on a hand-to-mouth basis. Rail steel bar mills are busy, and one maker continues to operate on double turn. Specifications and sales during April were equal to shipments, and backlogs remain as heavy as during March. All told, rail steel bar mills find that in terms of demand the month just closed was substantially ahead of the corresponding period of last year. Fence post shipments are heavy and the demand for rail steel reinforcement is gradually broadening out. State road work has brought out keen competition, but local producers contend that figures at which several contracts

were signed were quoted by mills to the south of Chicago.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Billets.—Local producers have booked 1000 tons of small billets at \$35 per gross ton, Chicago.

Rails and Track Supplies.—Chicago mills have added 3500 tons of standard-section rails to their books. This tonnage represents the total of several miscellaneous orders and carries with it about 500 tons of fastenings. Other new business placed includes 800 tons of joints, 8000 kegs of spikes and 700 kegs of bolts. Two inquiries for rails, totaling 3500 tons, remain unclosed. Less strength is noted in steel tie plates, which are now quotable at a flat price of 2.25c., Chicago district mill. There is some current demand for iron tie plates, and makers are scheduled on present contracts well into July.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, \$36 to \$38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. per lb. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.25c., mill; angle bars, 2.75c., mill.

Wire Products.—Early in April the jobbing trade bought rather liberally in anticipation of an increased spring demand, which did not materialize on account of weather conditions. That stock is now moving, and meanwhile the mills are not booking much new business. Stocks at the mills are not heavy, but are well balanced, and prompt shipments can be made in practically all lines. The manufacturing trade is active in the Chicago district, and second quarter contracts placed to date compare favorably in volume with those for the first quarter. Spring business booked by the mills so far this year is in greater volume than was that of 1925. Prices, which are steady, are shown on page 1299.

Bolts, Nuts and Rivets.—Small rivets are now quoted at 70 and 10 per cent off list. Demand for large rivets is expanding slightly as spring construction work gets under way, and the price of \$2.75, base, per 100 lb. is steady. Both new orders and specifications for bolts and nuts are running light, but makers are operating at close to 70 per cent of capacity.

Cast Iron Pipe.—The feature of the market is the comparatively large number of small tonnage contracts which are being placed from day to day. No large public inquiries are reported for the week, although the trade believes that a sizable inquiry, which may come out at an early date, is being prepared by Chicago. Among the private interests which are active in the market are the gas companies. The weather so far this spring has not been particularly favorable to laying of pipe, and deliveries on some large contracts have been held back. Deliveries, as a whole, are gradually extending, and shipments on 6-in. pipe are said to range from 60 to 70 days. Bids recently taken at Waukegan, Ill., have been rejected, and new figures will be taken. The United States Cast Iron Pipe & Foundry Co. has taken 165 tons for Marshfield, Wis., and 675 tons of 24-in. Class C pipe for Springfield, Ill. Milwaukee has awarded 1800 tons of large diameter pipe to

the Lynchburg Foundry Co., and the National Cast Iron Pipe Co. has booked 100 tons for Libertyville, Ill. Bloomington, Ill., will require about 250 tons of 4 to 16-in. Classes A and B pipe, and a fair tonnage of special castings, for a proposed sewage treating plant.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., \$53.20 to \$54.20; 6-in. and over, \$49.20 to \$50.20; Class A and gas pipe, \$4.

Reinforcing Bars.—Awards for the week are in good volume, and with weather conditions favorable, dealers anticipate that much of the tonnage still pending will soon be let. Fresh inquiry is in substantial volume, and there is considerable pressure from architects and contractors for prompt estimates and propositions from warehouses. So far the reinforcing bar market has been affected little, if any, by demands now being made by union labor in Chicago. There appears to be a prevailing confidence that all differences will be settled without any interruption in construction programs. Warehouse shipments for April were larger than in March and were ahead of those for the corresponding period of last year. Billet reinforcing bars are quoted at 2.60c., Chicago warehouse. Recent awards and inquiries are shown on page 1293.

Coke.—Shipments of by-product foundry coke are in good volume. Those for April were only slightly smaller than for March. Ovens are making prompt deliveries, and stocks in the hands of users are said to average about 30 days. Quotations in this district are \$9.75, ovens, or \$10.25, delivered in the Chicago switching district.

Old Material.—Users are still disposed to buy in small lots and only at prices which they consider satisfactory. This situation, combined with a more than adequate supply of all grades of scrap, has caused a further decline in many of the items listed. Heavy melting steel is off 25c., and although one large user took a small tonnage at \$12.75 early in the week, the trade doubts whether that price could be obtained again. Heavy smelting steel at \$12.25 to \$12.75 is not far from the average price which prevailed in 1921. The average for that year was \$11.98, with the low point in July at \$10. Rerolling rails have been in fair demand for some time, and dealers have had difficulty in supplying the trade, but recent railroad lists have eased this situation and the supply now is adequate for current demands. Railroad offerings this week include 45,000 tons by the Pennsylvania; 6200 tons by the Chicago & North Western, 4400 tons by the Big Four, and blank lists by the Erie and the New York Central.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton	
Heavy melting steel.....	\$12.25 to \$12.75
Frogs, switches and guards, cut apart, and miscellaneous rails.....	14.00 to 14.50
Shoveling steel.....	12.25 to 12.50
Hydraulic compressed sheets.....	16.50 to 11.00
Drop forge flashings.....	9.00 to 9.50
Forged, cast and rolled steel car wheels.....	17.00 to 17.50
Railroad tires, charging box size.....	17.25 to 17.75
Railroad leaf springs, cut apart.....	17.00 to 17.50
Steel couplers and knuckles.....	16.00 to 16.50
Coil springs.....	17.00 to 17.50
Low phos. punchings.....	15.50 to 16.00
Axle turnings, foundry grade.....	13.50 to 14.00
Axle turnings, blast furn. grade.....	12.00 to 12.50
Relaying rails, 56 to 60 lb.....	25.00 to 26.00
Relaying rails, 65 lb. and heavier.....	26.00 to 31.00
Rerolling rails.....	15.50 to 16.00
Steel rails, less than 3 ft.....	16.50 to 17.00
Iron rails.....	14.00 to 14.50
Cast iron borings.....	10.00 to 10.50
Short shoveling turnings.....	10.00 to 10.50
Machine shop turnings.....	7.50 to 8.00
Railroad malleable.....	16.50 to 17.00
Agricultural malleable.....	15.50 to 16.00
Angle bars, steel.....	14.75 to 15.25
Cast iron car wheels.....	15.50 to 16.00
Per Net Ton	
No. 1 machinery cast.....	16.00 to 16.50
No. 1 railroad cast.....	15.25 to 15.75
No. 1 agricultural cast.....	15.00 to 15.50
Stove plate.....	13.25 to 13.75
Grate bars.....	12.75 to 13.25
Brake shoes.....	11.50 to 12.00
Iron angle and splice bars.....	14.00 to 14.50
Iron arch bars and transoms.....	19.00 to 19.50
Iron car axles.....	23.50 to 24.00
Steel car axles.....	17.00 to 17.50
No. 1 railroad wrought.....	11.25 to 11.75
No. 2 railroad wrought.....	11.00 to 11.50
No. 1 busheling.....	9.25 to 9.75
No. 2 busheling.....	5.50 to 6.00
Locomotive tires, smooth.....	15.50 to 16.00
Pipes and flues.....	8.50 to 9.00

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Mild steel bars.....	3.00c.
Reinforcing bars, billet steel.....	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Hoops.....	4.15c.
Bands.....	3.65c.
No. 28 black sheets.....	4.10c.
No. 10 blue annealed sheets.....	3.50c.
No. 28 galvanized sheets.....	5.25c.
Standard railroad spikes.....	3.55c.
Track bolts.....	4.55c.
Structural rivets.....	3.50c.
Boiler rivets.....	3.70c.
	Per Cent Off List
Machine bolts.....	50 and 5
Carriage bolts.....	47½
Coach or lag screws.....	55 and 5
Hot-pressed nuts, square, tapped or blank, 3.25c. off per lb.	
Hot-pressed nuts, hexagons, tapped or blank, 3.75c. off per lb.	
No. 8 black annealed wire, per 100 lb.....	\$3.30
Common wire nails, base, per keg.....	3.05
Cement coated nails, base per keg.....	3.05

Cleveland

Automobile Output Gains Resulting in Release of Steel—Pig Iron Weaker

CLEVELAND, May 4.—The demand for finished steel in this territory is holding to about recent volume. Mills are getting many small orders, but lots of any size are scarce, making the aggregate tonnage booked rather light. Consumers appear to be following more rigidly than a few weeks ago their policy to buy only what they need. Stocks already low are being further reduced. Delaying their purchases as long as possible, some buyers are demanding deliveries in three or four days and are not having much trouble in finding some mill that can supply almost any requirement within a week.

With better weather conditions, sentiment in the automobile industry shows improvement. One large Detroit manufacturer of low-priced cars has made a slight increase in production, and another that sharply curtailed a month ago has released suspended shipments of steel with a view to increasing output. Some motor car builders are still maintaining close to maximum production. Unless other curtailments are put in effect, the May output of automobiles will show some gain over April. Buying of steel by automobile manufacturers took a light spurt during the week, but they were very cautious in making commitments and orders placed were generally only for May requirements.

Some of the manufacturing industries outside of the automobile field are on a production basis somewhat in excess of incoming orders and will need an increased volume of business in order to maintain present operations. A fair amount of structural work is coming out in the surrounding territories, but in Cleveland action on all new projects is suspended because work is tied up by a strike. An inquiry is pending for 470 tons of sheet steel piling for the Halle Brothers Co. Building. Plate orders for small lots gained during the week. Prices are holding at 1.90c., Pittsburgh, but the market is untested on large lots. Steel bars are firm at 2c. On structural material 1.90c. is the ruling price, both for small and large lots.

Pig Iron.—Producers are entering a fair number of orders, but they are almost wholly for small lots and the aggregate tonnage is light. One interest during the week sold 4000 tons, of which the largest lot was less than 500 tons. Most foundries are buying from hand to mouth, as they want to be in position to take advantage of any possible decline in prices. The market has a weak tendency, but there is scarcely enough business thoroughly to test prices. Foundry and malleable iron have declined another 50c. in Cleveland, or to \$19.50 at furnace for local delivery, but the quotation for outside shipment is unchanged at \$19. In the Valley district quotations of \$18.50, furnace, are appearing for shipments to competitive points, although most producers are holding to \$19. One Lake producer which has been quoting a minimum of \$20.50, furnace, is now shading that price 50c. a ton in some cases, evidently to meet reduced prices from southern Ohio furnaces. The Michigan market is unchanged at \$21, furnace. There has been some slowing down in foundry operations. In the automotive industry some foundries have not curtailed shipments and others have reduced their shipping orders 10 per cent or more as compared with a month ago. A Valley producer is holding to \$27.50,

furnace, for low phosphorus iron, but is losing some small-lot business because of lower prices named by Eastern furnaces.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6.01 from Birmingham:

Basic, Valley furnace.....	\$18.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	20.00
Southern fdy., sil. 1.75 to 2.25.....	\$26.51 to 28.01
Malleable.....	20.00
Ohio silvery, 8 per cent.....	30.52
Standard low phos., Valley furnace.....	27.50

Semi-Finished Steel.—A local mill the past week took several small-lot orders for sheet bars from consumers who are buying from hand to mouth. Specifications against contracts are light. Regular prices are being maintained.

Sheets.—Demand from the Detroit automobile manufacturers improved somewhat the past week, owing to placing of orders for May shipment and the release of suspended material. In the Cleveland territory the market continues very dull. Mills are running along from day to day, with little business ahead. Black sheets are soft, but there is little change in the price situation in respect to other grades. While 3.25c., Pittsburgh, is the more common quotation on black sheets, prices ranging from 3.05c. to 3.15c. are reported. Galvanized sheets are selling in car lots at 4.50c. Blue annealed sheets are steady at 2.40c.

Strip Steel.—New demand for cold-rolled strip steel from the automotive industry picked up somewhat the past week. As a result, a local steel plant has more cold-rolled strip on its books than a month ago. However, this improvement is not general with makers, some of whom need business. The ruling price remains at 3.75c., Cleveland. Hot-rolled strip steel is firm at regular quotations, but demand is only moderate.

Reinforcing Bars.—An inquiry is pending for 500 tons for a hotel in Detroit, for which the Lundoff-Bicknell Co., Cleveland, has a general contract. The placing of work locally is being held up by a strike. Rail steel bars are unchanged at 1.80c., mill, but this price is untested.

Warehouse Business.—There is a fair demand from manufacturing plants, but with building construction suspended no steel is moving for local building work. There is considerable irregularity in sheet prices, but other mill products out of stock are firm.

Bolts, Nuts and Rivets.—Demand for bolts and nuts has diminished the last week or two, owing to a falling off in the demand from the automobile manufacturers and from the implement manufacturers. The implement makers are about through with their season's production and are out of the market at present. Prices are firm. The demand for large rivets is fair, but almost entirely in specifications on contracts. Small rivets are in good demand, and the regular discount is holding except on large lots.

Iron Ore.—The Lake shipping season opened May 3 with the dispatch of the first ore cargo from Escanaba. Last year over 2 000 000 tons of ore were shipped during April. The late beginning this year was due to weather conditions. One cargo of 9664 tons was loaded at Superior last week and is listed as an April shipment, although it did not move from the dock during the month. There is still some activity in the ore market, mostly in small lots. Much of the business that is being placed now is in trade deals, in which consumers exchange ore that they own for other ore that they need.

Coke.—The demand for foundry coke is less active. Prices are unchanged at from \$4 to \$5.50, ovens, for standard Connellsville foundry coke, the higher price being for premium brands. Ohio by-product foundry coke is quoted at \$7.75, Painesville, for May shipment, or 25c. a ton less than last month.

Old Material.—Activity is confined mostly to buying by dealers to cover short orders, and prices are weak, although there are few changes in quotations. Dealers are paying \$14 for heavy melting steel and \$11.50 for blast furnace scrap, delivered to Cleveland

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes.....	3.00c.
Mild steel bars.....	3.00c.
Cold-finished rounds and hexagons.....	3.90c.
Cold-finished flats and squares.....	4.40c.
Hoops and bands.....	3.65c.
No. 28 black sheets.....	4.10c.
No. 10 blue annealed sheets.....	3.25c.
No. 28 galvanized sheets.....	5.25c.
No. 9 annealed wire, per 100 lb.....	\$2.00
No. 9 galvanized wire, per 100 lb.....	3.45
Common wire nails, base, per keg.....	3.00

consumers. Mills have large stocks, and stocks in the yards of some of the dealers have become rather heavy. There is virtually no demand from the Valley district, either from mills or dealers. Dodge Brothers, Inc., Detroit, have taken bids for their May production, aggregating 9500 tons of scrap. The Big Four Railroad will receive bids May 4 on 1500 tons.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$13.50 to \$13.75
Rails for rolling.....	15.75 to 16.00
Rails under 3 ft.....	17.00 to 17.50
Low phosphorus billet, bloom and slab crops.....	18.00 to 18.50
Low phosphorus sheet bar crops.....	18.00 to 19.00
Low phosphorus plate scrap.....	18.00
Light plate scrap.....	17.00
Forging crops.....	17.50
Cast iron borings.....	10.75 to 11.00
Machine shop turnings.....	10.25 to 10.50
Mixed borings and short turnings.....	10.75 to 11.00
Compressed sheet steel.....	12.75 to 13.00
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 13.75
Railroad malleable.....	19.50 to 20.00
Light bundled sheet stampings.....	11.50 to 11.75
Steel axle turnings.....	13.50 to 14.00
No. 1 cast.....	16.50 to 17.00
No. 1 busheling.....	11.00 to 11.25
Drop forge flashings.....	12.00 to 12.50
Railroad grate bars.....	13.00 to 13.25
Stove plate.....	13.00 to 13.25
Pipes and flues.....	11.50 to 12.00

New York

British Strike Casts Shadow Over Iron Market—Sheets, Shapes Unsteady

NEW YORK, May 4.—Interest is centered in the possible effects of the British general strike on the pig iron market. Already certain large buyers are said to be seriously considering covering their forward needs in iron and at least one important melter has protected himself for two to three months ahead. On the whole, however, opinion has not yet crystallized as to what can be expected to result from the British situation. There is a rather general disposition to doubt that the strike can last long, but opinion is agreed that for a time at least British iron will be removed from the world market and the tendency of other foreign irons should be toward greater strength. Thus far, however, prices of foreign irons in this market have shown little change. A purchase of 1600 tons of foreign metal by the Essex Foundry, Newark, is reported to have been closed at a flat price of less than \$20, on cars, Philadelphia, for No. 2 plain and higher silicon foundry. This company also purchased 500 tons of domestic iron. In a few instances during the past week or 10 days domestic iron has been bought at as low as \$21, eastern Pennsylvania furnace, but producers are said to be taking a much firmer attitude now in view of the turn in the foreign situation and are again adhering to \$22. Buffalo furnaces continue to hold to \$21, base, despite the pressure of melters for concessions. The season of navigation on the Erie canal is expected to open in the next week or 10 days. The barge rate from Buffalo to New York is \$2.75. Barge shipments will also be possible from the Port Henry and Troy, N. Y., furnaces. The Crane Co., Bridgeport, Conn., has bought 500 tons of foreign foundry iron and an equal tonnage of domestic malleable. The Burnham Boiler Corporation has closed for 500 tons each of domestic foundry iron for Irvington, N. Y., and Elizabeth, N. J. The Thatcher Furnace Co., New York, has bought 500 tons of iron from an eastern Pennsylvania stack. Sales of iron in this district last week totaled 10,000 tons and in the first two days of this week exceeded 2000 tons. There are practically no requests for suspensions of shipments, and the melt in this territory appears to be holding its own.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25.....	\$24.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75.....	25.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25.....	25.52
Buffalo fdy., sil. 1.75 to 2.25.....	25.91
No. 2 Virginia fdy., sil. 1.75 to 2.25.....	29.54

Ferroalloys.—The ferromanganese market is lifeless and there is practically no inquiry. Prices are unchanged with the minimum quotation at \$88, seaboard, at which level the metal is available to supply the demand. It is too early yet to estimate the effect of the strike on shipments of British alloy coming to this country on contract. In the event of a prolonged cessation of shipments over there, consumers here will have to turn to other sources of supply. The spiegeleisen market is only moderately active at unchanged prices. Specifications on contract for all major alloys are fairly heavy.

Warehouse Business.—Purchasing of reinforcing bars from stock is on a slightly larger scale than recently and prices are reported showing slightly more firmness. Demand for structural material is in good volume with but little shading of the present schedule. Black sheets are quiet but prices continue firm at 4.50c. per lb. base. Galvanized are more active and some jobbers report increased demand for blue annealed, which until recently have been rather quiet. Machine bolts continue weak with some sellers offering an additional 5 per cent over the current quotation of 40 and 10 per cent off list. Transactions in certain sizes of some products between jobbers suggest that stocks are not large.

Cast Iron Pipe.—While there is but little purchasing of pipe at present, practically all makers including the French works, Pont-a-Mousson, are well filled with business for the next two or three months, and several sizable private purchases are in prospect. A contract, bids on which were opened yesterday by St. Petersburg, Fla., involves the purchase by the contractor of about 14,000 tons of gas and water pipe. The low bidder was the Ladd Construction Co., with the McCreery Contracting Co. next. Union Beach, N. J.,

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.24c. to 3.34c.
Soft steel bars and small shapes.....	3.14c. to 3.24c.
Iron bars.....	3.24c.
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons.....	4.00c.
Plats and squares.....	4.50c.
Cold-rolled strip, soft and quarter hard.....	6.25c.
Hoops.....	4.49c.
Rands.....	3.99c.
Black sheets (No. 28 gage).....	4.50c.
Blue annealed sheets (No. 10 gage).....	3.89c.
Galvanized sheets (No. 28 gage).....	5.65c.
Long tern sheets (No. 28 gage).....	6.35c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galvanized annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread.....	40 and 10
Carriage bolts, cut thread.....	30 and 10
Coach screws.....	40 and 10

	Per 100 Ft.
Lap welded steel, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

	Black	Galv.
Standard Steel—		
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12

Wrought Iron—		
½-in. butt.....	4	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

	Primes	Seconds
Coke, 100-lb. base box.....	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.50	16.00

Terne Plate (14 x 20 in.)	
IC—20-lb. coating.....	\$16.00 to \$11.00
IC—30-lb. coating.....	12.00 to 13.00
IC—40-lb. coating.....	13.75 to 14.25

opened bids today on a contract involving the purchase of 2100 tons of pipe. The low bidder was William G. Fritz Co., West Orange, N. J. Kingston, N. Y., which recently opened bids on 1700 tons of pipe has awarded the business to the Pont-a-Mousson works, represented by B. Nicoll & Co., New York. The Havana Electric Co., Havana, Cuba, is reported taking bids on about 2000 tons of pipe.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, \$50.60 to \$52.60; 4-in. and 5-in., \$55.60 to \$57.60; 3-in., \$65.60 to \$67.60; with \$5 additional for Class A and gas pipe.

Finished Steel.—Further weakness in sheets is the only definite market development of the week. The low point on galvanized sheets is now 4.40c., Pittsburgh, a total drop of \$2 a ton, and black sheets have been sold at 3.20c., a \$1 drop. These prices are being made available only to those buyers who have fair-sized orders to place, but 4.45c. on galvanized and 3.25c. on black are commonly done. On blue annealed there has not been so much of a drop, the quotation of a week ago, namely, 2.40c., Pittsburgh, being fairly well held. There is, however, a dearth of new orders, but consumers are getting price revisions on their contracts. An occasional concession on structural shapes leaves that market in a position where it can no longer be said that 1.90c., Pittsburgh, is the ruling price, as most of the tonnages of size are being placed at \$1 or \$2 a ton below that figure. Plates are being held at 1.90c., Pittsburgh, but there is very little buying. The same situation holds true on wire nails, which have not changed in price, but orders are at a minimum. The volume of steel business in New York territory during April was fairly satisfactory, but showed a falling off in most instances from the March record. One company reports that its total volume through the New York office in the first four months of this year showed just under 12 per cent reduction from the tonnage booked in the corresponding months of 1925.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.19c. to 2.24c.; bar iron, 2.24c.

Old Material.—Apparently a sufficient volume of scrap to satisfy current requirements is being secured at the lower price level that became effective a little more than a week ago. No. 1 heavy melting steel continues to be purchased at \$15 to \$15.50 per ton, delivered with \$15.75 per ton occasionally paid for shipment to a Coatesville, Pa., consumer. Machine shop turnings and bundled skeleton are being purchased at \$12.50 to \$13.25 per ton, delivered, the price depending in part upon whether the broker is filling an old contract at higher price or a recent one. Specification pipe is down to \$15 per ton, delivered either to a Lebanon or a Columbia, Pa., consumer. The local market on stove plate for foundries continues quiet.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard).....	\$9.75 to \$10.25
Heavy melting steel (railroad or equivalent)	11.50 to 12.25
Rails for rolling	12.75 to 13.00
Relaying rails, nominal.....	23.00 to 24.00
Steel car axles.....	19.50 to 20.00
Iron car axles.....	22.50 to 23.00
No. 1 railroad wrought.....	14.00 to 15.00
Forge fire	10.00 to 10.50
No. 1 yard wrought, long.....	13.00 to 14.00
Cast borings (steel mill).....	9.25 to 10.00
Cast borings (chemical).....	12.50 to 13.00
Machine shop turnings.....	9.00 to 9.75
Mixed borings and turnings.....	9.25 to 9.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	11.25 to 11.50
Stove plate (steel mill).....	9.75 to 10.25
Stove plate (foundry).....	10.50 to 11.00
Locomotive grate bars.....	10.25 to 10.75
Malleable cast (railroad).....	16.00 to 17.00
Cast iron car wheels.....	13.25 to 14.25
No. 1 heavy breakable cast.....	12.00 to 12.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$16.50 to \$17.00
No. 1 heavy cast (column, building material, etc.), cupola size 15.00 to 15.50	
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Coke.—Demand continues moderate but with continued curtailment of the number of ovens in operation in the Connellsville district and renewal of foundry coke contracts for second half on the \$5.50 per ton

basis, no downward movement is expected. While a protracted strike in Great Britain might develop some foreign coke demand, continental prices are low. On a recent tonnage for Canada German by-product is reported to have been quoted at \$6 per ton c.i.f. Three Rivers, Que. Standard foundry is unchanged at \$8.41 to \$9.41 delivered Newark and Jersey City, N. J., \$8.54 to \$9.53 delivered northern New Jersey and \$9.29 to \$10.29, delivered New York or Brooklyn, N. Y. By-product continues at \$9.75 to \$10.77 per ton, delivered Newark or Jersey City, N. J.

Philadelphia

British Coal Strike Overshadows Other Factors in Iron and Steel Market

PHILADELPHIA, May 4.—The British labor strike was almost the sole subject of interest today in an iron and steel market which is drifting along under the identical conditions which have prevailed for the last few weeks. It is the pig iron trade more than any other branch which will watch carefully for any information from the other side tending to indicate what effect, if any, the strike, will have upon the market here. All predictions are purely guesswork and are tinged with the reservation that the English crisis will be of short duration. Some are of the opinion that there will be a decided strengthening of pig iron prices along the Atlantic seaboard, but in the absence of definite knowledge one guess is as good as another. What has actually happened is that concessions amounting usually to 50c. a ton have been withdrawn and the pig iron trade is awaiting developments. Imports of English iron have been fairly heavy, but of late more low phosphorus than foundry grades have come in. Some stocks of English foundry iron here have been fairly well cleaned up.

Except for further weakening in prices of steel sheets, particularly galvanized and black, there has been no development of interest in the steel trade. Business is in fair volume, but there is no snap to buying. The scrap market continues weak, but there have been virtually no changes in prices.

Pig Iron.—Due to the British labor strike, prices on foundry iron in this district have stiffened. Makers who were granting concessions of 50c. a ton during the past week or two have gone back to \$22, base, and indications are that this level will be firmly held, at least until it is known whether the strike will in any way affect the market here. Last week's importations of pig iron at Philadelphia were 9100 tons, but none of this came from England. Much of the English iron which has come to Philadelphia in the past several months has been low phosphorus. Some dislocation of the international pig iron trade is expected, but whether it will benefit the American market is entirely a matter of conjecture. Meanwhile there is no marked activity in the local market. The Baldwin Locomotive Works is inquiring for 1500 to 2500 tons of cylinder iron. The Maryland Car Wheel Co. wants 300 to 500 tons of iron of special analysis. The Midvale Co., Nicetown, which inquired weeks ago for 1000 tons of basic and 1000 tons of foundry iron, is reported to have made no purchase.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$22.76 to \$23.63
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.26 to 24.13
East. Pa. No. 1X.....	23.76 to 24.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.....	21.75 to 22.25
Gray forge	22.00 to 22.50
Malleable	22.50 to 23.00
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferromanganese.—With ferromanganese available from one domestic producer at \$88, sales are few, since most consumers are covered well ahead. Another furnace company is holding to a nominal quotation of \$95, furnace.

Billets.—Some contract customers are specifying moderately against contracts, but very little new business is originating. Prices remain unchanged at \$35, Pittsburgh, for rerolling billets and \$40 for forging billets.

Plates.—Some of the Eastern plate mills operated about as well in April as they did in March, but operations now are very much on a hand-to-mouth basis. Yet orders are in fair number, though usually small. Eastern mills are adhering to 1.90c., Pittsburgh.

Structural Shapes.—Small building jobs are numerous, but there is very little large work in the market and no lettings of importance. Plans are out for the City Hall Annex, which will take about 5000 tons. A high school building at Hazleton, Pa., has been awarded. The price situation is unchanged, with some mills quoting 1.90c., Pittsburgh, and others the equivalent of 1.80c. to 1.85c., Pittsburgh, on the more desirable business.

Bars.—An inquiry for 2500 tons of bars for a manufacturing plant for the General Electric Co., Philadelphia, is the largest local reinforcing steel project in some time. Demand for bars shows a slight falling off, but the price remains firm at 2c., Pittsburgh. Bar iron is 2.22c., Philadelphia.

Sheets.—Galvanized sheets are now available at 4.40c. and 4.45c., Pittsburgh; black sheets have declined in some instances to 3.20c., but blue annealed, having declined \$2 to 2.40c., show no additional weakness. Buying is in light volume.

Imports.—Last week's importation of pig iron at Philadelphia totaled 9102 tons, but none of this came from England. India shipped 5548 tons, Germany 2350 tons, France 1354 tons and the Netherlands 850 tons. Iron ore receipts were fairly heavy, 7700 tons coming from Algeria and 125 tons from Spain. Steel imports were as follows: Structural shapes from the Netherlands, 57 tons; shapes from Belgium, 324 tons; steel blooms from France, 718 tons; galvanized steel strips from England, 14 tons; steel tubes from England, 5 tons; hoop steel from England, 31 tons.

Old Material.—With heavy melting steel at \$16 in the Pittsburgh district, it is somewhat surprising that the range in the eastern Pennsylvania market, \$15.50 to \$16, is on such a close parity, since Pittsburgh mills have about \$1 higher freight rate from New England and some other points than mills of this district. Fairly good sales were made yesterday to Eastern mills at \$16, delivered, but there is no other business pending. Brokers are not paying above \$15.50 on their orders and in one instance only \$15 is being offered. The

supply of scrap of all grades is greatly in excess of the demand.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel.....	\$15.50 to \$16.00
Scrap rails.....	15.50 to 16.00
Steel rails for rolling.....	17.00 to 17.50
No. 1 low phos., heavy, 0.04 per cent and under.....	20.00 to 20.50
Couplers and knuckles.....	18.50 to 19.00
Rolled steel wheels.....	18.50 to 19.00
Cast iron car wheels.....	17.50 to 18.00
No. 1 railroad wrought.....	17.50 to 18.00
No. 1 yard wrought.....	16.50 to 17.00
No. 1 forge fire.....	14.50 to 15.00
Bundled sheets (for steel works)	13.00
Mixed borings and turnings (for blast furnace).....	12.50 to 13.00
Machine shop turnings (for steel works).....	13.00
Heavy axle turnings (or equivalent).....	15.00
Cast borings (for steel works and rolling mill).....	13.50
Cast borings (for chemical plant)	15.50 to 16.00
No. 1 cast.....	17.50 to 18.00
Heavy breakable cast (for steel works).....	16.00 to 16.50
Railroad grate bars.....	13.50
Stove plate (for steel works).....	13.50
Wrought iron and soft steel pipes and tubes (new specifications)	15.50 to 16.00
Shafting.....	21.00 to 22.00
Steel axles.....	22.50 to 23.00

Irregularity of Finishing Mill Operations Results in Steel Accumulations

YOUNGSTOWN, May 4.—Iron and steel production schedules in the Mahoning Valley this week reflect to a greater extent than for several weeks past the hand-to-mouth nature of current buying. Owing to irregularity in finishing mill operations, there has been some steel accumulation, accounting for a reduction in the average rate of ingot output from an 80 per cent average to a rate approaching 72 per cent. Production of steel pipe and heavy plates is maintaining the rate of recent weeks.

Independents are maintaining steel bar schedules at 65 per cent, but the Carnegie Steel Co. is operating such capacity at 75 per cent. Strip mills are operating at 75 per cent, tin mills close to capacity and skelp units at 70 per cent. Of 18 pipe mills in the Valley, the equivalent of 13½ are in action. The United States Steel Corporation is averaging 80 per cent in this district, including all of its properties.

Swedish Crown Prince to Visit American Industrial Plants

Crown Prince Gustavus Adolphus of Sweden will arrive in this country on May 27, accompanied by Crown Princess Louise, as the official representative of his country at the unveiling of the John Ericsson memorial statue in Washington on May 29.

Afterward the crown prince will travel through America as far as the West Coast, visiting the principal cities. Crown Prince Gustavus Adolphus, whose life has been described as a continuous training for his future task as the king of Sweden, has always devoted special interest to the leading industries of his country and has, among other things, actively presided over the General Swedish Export Association and similar bodies. The commercial cooperation between America and Sweden has especially interested him, and during his two-month visit in this country one of his main purposes will be to make a personal study of American industries.

Among other things, he will visit the Edison laboratories in West Orange, N. J., and the Ford motor works in Detroit. On June 23 the crown prince and his party will inspect the steel works at Gary, Ind.

East Youngstown, Ohio, has been renamed Campbell, in honor of James A. Campbell, president Youngstown Sheet & Tube Co., in whose plant most of the residents of the city are employed. The change took effect April 26.

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¾-in. and heavier.....	2.80c. to 3.00c.
Tank steel plates, ½-in.....	3.00c.
Structural shapes.....	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands).....	3.00c.
Round-edge iron.....	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.....	3.50c.
Round-edge steel, planished.....	4.30c.
Reinforcing steel bars, square, twisted and deformed.....	3.00c.
Cold-finished steel, rounds and hexagons.....	4.00c.
Cold-finished steel, squares and flats.....	4.50c.
Steel hoops.....	4.00c. to 4.25c.
Steel bands, No. 12 gage to ¾-in., inclusive.....	3.75 to 3.90c.
Spring steel.....	5.00c.
No. 28 black sheets.....	4.65c.
No. 10 blue annealed sheets.....	3.50c.
No. 28 galvanized sheets.....	5.85c.
Diamond pattern floor plates—	
¾-in.....	5.30c.
½-in.....	5.50c.
Rails.....	3.20c.
Tool steel.....	8.50c.
Swedish iron bars.....	6.00c. to 6.50c.

San Francisco

Real Test of Prices Lacking in a Market Devoid of Sizable Inquiries

SAN FRANCISCO, May 1 (*By Air Mail*).—Despite the conservative attitude of buyers and the apparent disposition of some sellers to make low quotations, there have been comparatively few real tests of prices in any department of the market, primarily because there have been so few large inquiries up for figures. Reports that a certain tonnage of structural shapes was placed during the week at less than 2.30c., c.i.f. Coast ports, lack confirmation. While 2.30c. has been quoted, most of the Eastern mills continue to ask 2.35c. on small orders. Since most pending projects are small, the average price of plain material remains, for all practical purposes, at that level. In plates it is doubtful if many of the pending inquiries could be placed for less than 2.30c., despite the fact that 2.25c. is being quoted by some of the Eastern mills.

The local union carpenters' strike, now in its fifth week, has not stopped building operations, but it has slowed up work now in progress and to some extent probably is retarding the development of fresh inquiries.

Following the issuance of a permit a week ago by the State Division of Water Rights to the East Bay Municipal Utility District, Oakland, Cal., to tap the waters of the Mokelumne River at Lancha Plana, Cal., the State Reclamation Board has requested the Federal Power Commission to withhold the issuance of a similar permit until flood control reports now in preparation have been completed and considered by the board. If this request is complied with, it will further delay work on the Mokelumne project and prevent several pending contracts from being closed.

Pig Iron.—Orders for the most part are small, and no important transactions are known to have been closed during the week. Prices are unchanged since the recessions reported a week ago.

	Per Gross Ton
*Utah basic	\$26.00 to \$27.00
*Utah foundry, sil. 2.27 to 3.25 ..	26.00 to 27.00
**English foundry, sil. 2.75 to 3.25 ..	25.00
**Indian foundry, sil. 2.75 to 3.25 ..	24.50
**German foundry, sil. 2.75 to 3.25 ..	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25 ..	22.50
**Belgian foundry, sil. 2.75 to 3.25 ..	22.00

Shapes.—Fresh inquiries call for 3620 tons; lettings total 750 tons. The largest award of the week was made in Los Angeles, where the Baker Iron Works took 550 tons for a municipal garage. In San Francisco the Otis Elevator Co. is understood to have placed 100 tons with an Eastern mill. New bids are expected to be called next week on 2000 tons for the Fox Theater, San Francisco, and also on 700 tons for a 15-story addition to the Commercial Union Building. Eastern mills quote plain material at 2.30c. to 2.35c., c.i.f. Coast ports.

Plates.—The Shell Oil Co., Los Angeles, will close bids May 26 on 3100 tons for ten 80,000-bbl. tanks to be erected at Wilmington, Cal., and the East Bay Municipal Utility District, Oakland, Cal., will close bids May 14 on 100 tons in connection with its Claremont tunnel job. These are the only important inquiries of the week. The Union Oil Co. has taken no further action on its recent inquiry for 23,000 tons. The Pacific Commercial Co., Manila, P. I., representing German interests, is low bidder on 3200 tons for a pipe line in Manila for which bids were taken by the Atlantic, Gulf & Pacific Co. Bartlett-Hayward Co., Baltimore, took

Warehouse Prices, f.o.b. San Francisco

	Base per lb.
Plates and structural shapes	3.30c
Mild steel bars and small angles	3.30c
Small channels and tees, $\frac{3}{4}$ -in. to 2 $\frac{3}{4}$ -in.	3.90c
Spring steel, $\frac{1}{4}$ -in. and thicker	6.30c
No. 28 black sheets	4.75c
No. 16 blue annealed sheets	3.75c
No. 28 galvanized sheets	6.00c
Common wire nails, base per keg	\$3.50
Cement coated nails, base per keg	3.00

3000 tons for a gas holder for the Southern California Gas Co., Los Angeles. Eastern mills continue to quote 2.25c. to 2.30c., c.i.f. Coast ports.

Bars.—Two new piers to be constructed on the San Francisco water front by the State Board of Harbor Commissioners are expected to call for about 2400 tons of reinforcing bars, on which bids will be called for shortly. About 600 tons was placed with bar jobbers during the week. Prices continue firm, with local jobbers quoting as follows: 2.80c., base per lb. on lots of 250 tons; 2.95c., base per lb., on carload lots, and 3.20c., base, on less-than-carload lots.

Cast Iron Pipe.—The American Cast Iron Pipe Co. is low bidder on 1800 tons for the city of Pasadena, Cal. Bids have been taken under advisement, and an award will be made May 4. The American Cast Iron Pipe Co. submitted bids on its new "monocast" product, which is made centrifugally in refractory-lined molds. This was its first public bid on the Pacific Coast on this type of pipe. Its bid was \$83,417.96, against \$83,539.84 made by the United States Cast Iron Pipe & Foundry Co. Belgian interests bid \$88,470, and French bidders quoted \$89,276. B. Nicoll & Co. have been awarded 134 city of Anaheim, Cal. Glendale, Cal., is taking bids on about 2000 tons.

Warehouse Business.—Individual orders are small, but the aggregate is substantial. April sales are expected to compare favorably with those of last year.

Sheets.—A consumer in southern California has placed 515 tons of blue annealed sheets with an unnamed mill. Buying, however, continues to lag. Eastern mills quote as follows: Blue annealed sheets, 2.40c. to 2.50c., base per lb., Pittsburgh; galvanized sheets, 4.50c. to 4.60c., and black sheets, 3.25c. to 3.35c.

Rails and Track Supplies.—The Southern Pacific Co. recently placed 55,000 tie plates, 6675 kegs of bolts and 21,300 kegs of track spikes with unnamed firms. Some of this business is understood to have been closed in Chicago.

Coke.—Local importers expect fresh shipments this month from England and the Continent. Buying is restricted. Importers quote as follows:

English bee-hive, \$15 to \$16 per ton at incoming dock, and English by-product, \$12 to \$14; German by-product, \$11.50 to \$12.
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Birmingham

Plates and Shapes Down \$1 a Ton—Buyers Waiting for Lower Pig Iron

BIRMINGHAM, May 4.—A waiting policy continues to be pursued by pig iron buyers, particularly the larger melters, who expect price reductions of \$2 to \$2.50 a ton. While sales have been light of late, furnaces continue to adhere rigidly to \$22, Birmingham, for No. 2 foundry. Thirteen blast furnaces are active in this district and they are making steady deliveries against their commitments which, it is said, will keep them busy through the next 30 days. At the same time little tonnage is being added to stocks on furnace yards. No further purchases of foreign pig iron are reported. A canvass of consumers indicates that pressure pipe makers still have much business to deliver but that other plants are slowing up. Furnaces, however, believe that some of the larger melters will be forced to come into the market for additional iron before long. Producers in this district are doing practically no business where Middle Western or Northern competition is encountered. Northern users who are accustomed to buy some Southern pig iron, are postponing their purchases.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	\$22.00
No. 1 foundry, 2.25 to 2.75 sil.	22.50
Basic	22.00
Charcoal, warm blast	\$30.00 to 32.00

Billets.—Foreign steel billets have been coming into this district periodically and upward of 10,000

tons are expected to be delivered here in the near future.

Rolled Steel.—Plates and structural shapes have declined \$1 a ton, plates now ranging from 2c. to 2.10c. base per lb., Birmingham, and shapes from 2c. to 2.05c. Soft steel bars remain unchanged at 2.15c. to 2.25c., base Birmingham. Many of the smaller fabricating shops are still running at capacity and apparently still have considerable work on hand. Tank makers are still busy on various contracts for oil distributing stations. A fair amount of business in plates, sheets and miscellaneous forms of finished steel is coming from specialty shops. Spasmodic orders from the railroads for car underframes, rails, track accessories, and bridge steel help to build up mill bookings to what is still considered a satisfactory total. The late spring had an adverse effect on the wire and nail trade.

Cast Iron Pipe.—Although a few additional lettings of pressure pipe were reported during the week, inquiries are light. Shop operations, however, are heavy and shipments are steady. While some tonnage is being delivered in the Southeast, much more is moving to the Middle West and the Northwest. Business on hand and in immediate prospect will warrant a continuation of active operations for several weeks.

Coke.—Foundry coke has declined 50c. a ton, and now ranges from \$5 to \$5.50, Birmingham. Independent ovens are maintaining a high rate of operation and are making heavy shipments.

Old Material.—Demand, which has been slow for several weeks, fails to show any signs of revival. There have been no cancellations against old contracts, however, and dealers are buying and preparing stock for current shipments as well as for probable future demands. Activity in heavy melting steel has been almost entirely lacking.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical.....	\$15.00 to \$16.00
Heavy melting steel.....	13.00 to 14.00
Railroad wrought.....	12.00 to 13.00
Steel axles.....	18.00 to 19.00
Iron axles.....	18.00 to 19.00
Steel rails.....	18.00 to 18.50
No. 1 cast.....	17.00 to 17.50
Tramcar wheels.....	17.00 to 17.50
Car wheels.....	16.00 to 16.50
Stove plate.....	14.00 to 14.50
Machine shop turnings.....	8.00 to 8.50
Cast iron borings.....	8.00 to 9.00
Rails for rolling.....	15.00 to 16.00

St. Louis

Fair Weather Aids Building—Scrap Declines—Pig Iron Quiet

ST. LOUIS, May 4.—Interest in pig iron is not impressive, and sales and inquiries are light. All classes of melters are disposed to postpone filling the remainder of their second quarter requirements, and no heed is taken of needs beyond that period. Actual sales reported totaled about 7000 tons. The St. Louis Coke &

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes.....	3.35c.
Bars, mild steel or iron.....	3.15c.
Cold-finished rounds, shafting and screw stock.....	3.75c.
No. 28 b'ack sheets.....	4.60c.
No. 10 blue annealed sheets.....	3.60c.
No. 28 galvanized sheets.....	5.70c.
Black corrugated sheets.....	4.65c.
Galvanized corrugated sheets.....	5.75c.
Structural rivets.....	3.65c.
Boiler rivets.....	3.85c.

Per Cent Off List

Tank rivets, $\frac{7}{16}$ -in. and smaller.....	70
Machine bolts.....	50 and 5
Carriage bolts.....	47½
Lag screws.....	55 and 5
Hot-pressed nuts, square, blank or tapped.....	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped.....	3.75c. off per lb.

Iron Corporation sold 2500 tons of basic to a user in the district and 2500 tons of foundry iron to a western Missouri specialty maker, both for delivery over next 60 days. A car wheel maker purchased 250 tons and a local specialty manufacturer 200 tons for prompt shipment. Quotably prices were unchanged, but their trend is downward and sales have been made below list quotations.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, \$2.16 freight from Chicago, \$4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25.....	\$23.16 to \$24.16
Northern malleable, sil. 1.75 to 2.25.....	23.16 to 24.16
Basic.....	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25.....	25.42 to 27.42
Granite City iron, sil. 1.75 to 2.25.....	23.31 to 23.81

Finished Iron and Steel.—The improved weather of the past 10 days has stimulated specifying both on warehouse and mill materials for building work. Fabricators report a fair volume of orders which, however, are made up almost entirely of small jobs. Road building materials are in better demand. The Illinois Highway Commission will let a round tonnage of reinforcing bars and 65 tons of structural steel this week, and the Missouri commission will also let a contract for reinforcing material. Some improvement in demand for galvanized sheets and wire products from the country has developed. The Wabash Railway Co. is in the market for 1500 to 1700 tons of 110-lb. 39-ft. rails, with necessary splice bars, spikes and bolts.

Coke.—Reflecting generally heavy operations at mills and foundries, the demand for foundry coke continues brisk. Local by-product plants, which are booking virtually all the business, are operating at capacity and shipping most of their current outputs. Some contracting by industrial users for remainder of year is reported, but the volume is less than usual for this season. Cold weather was responsible for a continued fair movement of domestic sizes. Prices were unchanged on all grades and descriptions.

Old Material.—Further declines, ranging from 25c. to \$1 per ton, have been recorded in prices. Consumers are purchasing sparingly and only such material as they require for immediate use. The railroads continue to sell heavily and are shipping very promptly all the material they dispose of. Lists before the trade included the following: Big Four, 4300 tons; St. Louis-San Francisco, 3500 tons; St. Paul, 1600 tons; Missouri Pacific, 5500 tons; Pennsylvania, 45,000 tons, and Wabash, 1000 tons. Except in the case of a few steel specialties moving from Arkansas and Oklahoma points, nothing whatever is coming in from the country.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton
Iron rails.....	\$12.00 to \$12.50
Rails for rolling.....	15.00 to 15.50
Steel rails less than 3 ft.....	16.50 to 17.00
Relaying rails, 60 lb. and under.....	24.00 to 25.00
Relaying rails, 70 lb. and over.....	30.00 to 31.00
Cast iron car wheels.....	15.50 to 16.00
Heavy melting steel.....	12.25 to 12.75
Heavy shoveling steel.....	12.25 to 12.75
Frogs, switches and guards cut apart.....	13.75 to 14.25
Railroad springs.....	16.50 to 17.00
Heavy axle and tire turnings.....	8.50 to 9.00
No. 1 locomotive tires.....	16.50 to 17.00
	Per Net Ton
Steel angle bars.....	12.50 to 13.00
Steel car axles.....	17.50 to 18.00
Iron car axles.....	21.50 to 22.00
Wrought iron bars and transoms.....	18.00 to 18.50
No. 1 railroad wrought.....	11.00 to 11.50
No. 2 railroad wrought.....	11.00 to 11.25
Cast iron borings.....	10.00 to 10.50
No. 1 busheling.....	11.00 to 11.50
No. 1 railroad cast.....	14.00 to 14.50
No. 1 machinery cast.....	16.50 to 17.00
Railroad malleable.....	13.50 to 14.00
Machine shop turnings.....	6.25 to 6.75
Bundled sheets.....	7.00 to 7.50

The special research committee on boiler furnace refractories of the American Society of Mechanical Engineers has had two new members added—Nathan E. Lewis, engineer Babcock & Wilcox Co., 85 Liberty Street, New York, and J. S. McDowell.

Boston

Better Weather Stimulates Warehouse Business—Pig Iron and Scrap Dull

BOSTON, May 4.—Current sales are mostly in car lots and are confined largely to New York State and foreign iron. New York State iron continues to sell at delivered prices slightly under those quoted by Buffalo district furnaces, while Continental iron brings about \$3 a ton less than domestic. Sales the past week included some Indian iron at about \$23, on dock here duty paid. Aggregate sales for this district, including both domestic and foreign irons, did not exceed 2000 tons, however. The melt in New England is just about holding its own. A majority of foundries have sufficient iron on hand or on order to carry them into June and are limiting purchases to special analyses to sweeten up mixtures. Many of them are holding back on third quarter buying pending the completion of the local furnace. The Interstate Commerce Commission is about to grant a substantial reduction in the freight rate into New England from a western Pennsylvania furnace which now has a rate \$1 a ton higher than from Buffalo to New England.

We quote delivered prices on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25....	\$25.65 to \$26.15
East. Penn., sil. 2.25 to 2.75....	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25....	25.41 to 25.91
Buffalo, sil. 2.25 to 2.75....	25.91 to 26.41
Virginia, sil. 1.75 to 2.25....	29.92
Virginia, sil. 2.25 to 2.75....	30.42
Alabama, sil. 1.75 to 2.25....	31.60 to 32.60
Alabama, sil. 2.25 to 2.75....	32.10 to 33.10

Cast Iron Pipe.—Braintree, Mass., on May 3 closed bids on 250 tons of 6-in. to 12-in. pipe, and New Bedford, Mass., received tenders on May 4 for an indefinite tonnage of pipe and fittings. Everett, Mass., has finally placed its 1926 pipe requirements with the Warren Foundry & Pipe Co., and Falmouth, Mass., has closed with the United States Cast Iron Pipe & Foundry Co. for 200 tons of pipe and fittings. Prices on small pipe remain firm, while concessions offered on large are growing smaller. Prices quoted openly on domestic pipe follow: 4-in., \$60.10 a ton, delivered common Boston freight rate points; 6-in. and larger, \$55.10. The usual \$5 differential is asked on Class A and gas pipe.

Warehouse Business.—An improvement in weather conditions, together with greater activity in metal working shops, has speeded up the movement of iron and steel out of warehouses. The tendency of the average buyer is to take small lots of stock at a time. Wire nails, however, are moving freely and in fairly large lots, presumably in anticipation of higher prices. Warehouse prices, which are unchanged, are very firm.

Coke.—Both the New England Coal & Coke Co. and the Providence Gas Co. announce that the May price on by-product foundry coke will be \$12.50 a ton, delivered

within a \$3.10 freight rate zone, the same as the April price. Although no specified date has been set, both companies indicate that last half contract books will be opened around the middle of this month. Specifications in April ran considerably ahead of those for March, and May is starting off well. Connellsville district foundry coke is offered at delivered prices considerably under those quoted by the New England producers, but only a limited amount is being taken, mostly in Connecticut.

Old Material.—There has been a further contraction in the movement of all kinds of old material in and out of New England. What little buying is noted is confined to heavy melting steel, borings, turnings and skeleton, and forged material. Most of the steel bought the past week was on a basis of \$11 on cars, or less, with \$10.60 representing the bottom of the market. Offers made for material at less than \$10.60 have failed to attract sellers. Steel turnings, as a rule, are bringing less than \$9, but an occasional car of selected stock brings that price. While the range of prices on forged scrap and skeleton remains \$9 to \$9.50, current sales are generally around \$9.25.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	\$19.50 to \$20.00
No. 1 machinery cast.....	18.50 to 19.00
No. 2 machinery cast.....	14.50 to 15.00
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.60 to \$11.00
No. 1 railroad wrought.....	13.00 to 13.50
No. 1 yard wrought.....	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long).....	10.75 to 11.25
Machine shop turnings.....	8.50 to 9.00
Cast iron borings, chemical....	10.50 to 11.00
Cast iron borings, rolling mill..	8.50 to 9.00
Blast furnace borings and turnings	8.25 to 8.50
Forged scrap	9.00 to 9.50
Bundled skeleton, long.....	9.00 to 9.50
Forged flashings	9.00 to 9.50
Bundled cotton ties, long.....	8.50 to 8.75
Bundled cotton ties, short.....	9.00 to 9.50
Shafting	16.00 to 16.50
Street car axles.....	15.50 to 16.00
Rails for rerolling.....	11.50 to 12.00
Scrap rails	10.50 to 11.00

Cincinnati

Keen Competition Brings Out Lower Pig Iron Prices—Sheets Weak

CINCINNATI, May 4.—A sudden flurry in pig iron buying, which brought out exceptionally low prices, has been the outstanding development in the local market. Sales in the past week have approximated 9000 tons. The major portion of the tonnage was taken by a Cleveland producer at about \$18, base, furnace, for second and third quarter delivery. With Lake furnace interests offering iron in this territory at that figure, Ironton sellers, who are refusing to accept less than \$20, base, Ironton, have disposed of only small lots. If the severe competition continues, it is believed that Ironton furnaces will reduce their quotations rather than permit outside producers to book tonnages which logically are within the radius of the Ironton market. The Superior Gas Engine Co., Springfield, Ohio, has closed for 3500 tons of No. 2 foundry iron with a Lake furnace and for 1200 tons of malleable with a Columbus, Ohio, furnace. The Nordyke & Marmon Co., Indianapolis, has bought 1500 tons of foundry iron from a Lake producer. Alabama iron nominally remains at \$22, base, Birmingham, but melters who have used iron from that State for many years are contracting for Northern grades rather than pay a premium for it. Silvery iron is moving at a fair rate, with 8 per cent selling at \$27.50, Jackson. Sizable tonnages of malleable iron now can be obtained at \$19.50, base, furnace, a drop of 50c. from previous quotations. The Advance Foundry Co., Dayton, Ohio, is expected to purchase 2000 tons of malleable for third and fourth quarter delivery. The Hooven, Owens, Rentschler Co., Hamilton, Ohio, is inquiring for 500 to 1000 tons of foundry

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes.....	3.265c.
Flats, hot rolled.....	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Wayne	5.50c.
Norway, rounds	6.60c.
Norway, squares and flats.....	7.10c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees and zebs.....	3.415c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons.....	3.95c.
Squares and flats.....	4.45c.
Toe calk steel.....	6.00c.

iron for the second and third quarters, while the Tennessee Stove Co., Chattanooga, Tenn., is in the market for 500 tons of foundry grades. The Sarah Furnace of the Belfont Steel & Wire Co., Ironton, Ohio, will be blown in on May 4, making a total of five active merchant furnaces in southern Ohio.

Based on freight rates of \$3.69 from Birmingham and \$1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25	
(base)	\$25.69
Alabama fdy., sil. 2.25 to 2.75...	26.19
Tennessee fdy., sil. 1.75 to 2.25...	25.19
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25....	21.89
So. Ohio malleable.....	\$21.39 to 21.89

Finished Material.—Both specifications and orders are gaining, and the increased tonnage in the last 10 days of April partly offset the light bookings early in the month. However, the volume of business in April fell slightly short of that in March. Despite the disappointing record last month the market has a better tone. Consumers are buying only in small quantities, but their urgent requests for prompt deliveries indicate that their stocks are well depleted. While orders are not heavy enough to permit mills to accumulate a backlog, there is a continuous flow of business which is characteristic of healthy industrial conditions. Additional evidence of concessions in prices, especially in sheets, has appeared. Independent producers are tempting black sheet buyers with a quotation of 3.15c., base Pittsburgh. While Eastern mills will not meet that figure, they will accept 3.25c. on attractive lots. Galvanized sheets have been sold as low as 4.40c., base Pittsburgh, in an endeavor to arouse the interest of consumers. Demand for blue annealed sheets is light, and they are quoted at 2.40c. to 2.50c., base Pittsburgh. Activity in bars is lacking, but the price remains firm at 2c., base Pittsburgh. Structural shapes are commanding more attention at 1.90c., base Pittsburgh. There has been a perceptible increase in the movement of tank plates, which are steady at 1.90c., base Pittsburgh. Sales of wire goods have increased in the past 10 days. Local jobbers have received a barge shipment of nails from an Ironton, Ohio, producer. Common wire nails are quoted at \$2.65 per keg, base Ironton, and plain wire at \$2.50 per 100 lb., base Ironton. Gas holder fabricators are operating at a high rate, while other steel fabricators in this territory have a moderate amount of work on hand.

Reinforcing Bars.—In the absence of sizable awards and inquiries the market is dull. There are no signs which indicate an improvement in the immediate future. Meanwhile new billet bars are nominally quoted at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—A further increase in sales the past week was sufficiently large to place the total volume of business for April ahead of that for March. An important jobber states that the past month was the best since last September. Structural steel and tank plates have been particularly active. Quotations are steady and unchanged.

Coke.—By-product foundry coke specifications have

tapered off in the past week. While the by-product domestic coke market is quiet, dealers are stocking considerable quantities against next winter's trade requirements. A Wisconsin consumer is in the market for 7000 to 10,000 tons of Wise County foundry coke. Otherwise, the demand for beehive coke is light. Prices are unchanged.

Based on freight rates of \$2.14 from Ashland, Ky., \$3.53 from Connellsville, and \$2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, \$7.53 to \$9.53; Wise County foundry, \$6.84 to \$7.59; New River foundry, \$9.59 to \$10.09; by-product foundry, \$10.14.

Old Material.—There has been a further reduction in the quotations on melting and cast iron grades, with heavy melting steel showing a 50c. decline. Mills are reluctant to purchase material unless they are able to secure it at a substantial concession in price. Since dealers are unwilling to do business on those terms, mill buying has been negligible. The Big Four has a list of 5000 tons, of which 2000 tons consist of heavy melting steel, closing this week.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel.....	\$11.50 to \$12.00
Scrap rails for melting.....	12.00 to 12.50
Short rails.....	16.50 to 17.00
Relaying rails.....	27.00 to 27.50
Rails for rolling.....	13.00 to 13.50
Old car wheels.....	12.50 to 13.00
No. 1 locomotive tires.....	16.50 to 17.00
Railroad malleable.....	15.50 to 16.00
Agricultural malleable.....	14.00 to 14.50
Loose sheet clippings.....	7.00 to 7.50
Champion bundled sheets.....	9.00 to 9.50

Per Net Ton	
Cast iron borings.....	6.50 to 7.00
Machine shop turnings.....	6.00 to 6.50
No. 1 machinery cast.....	17.00 to 18.00
No. 1 railroad cast.....	13.50 to 14.00
Iron axles.....	20.00 to 20.50
No. 1 railroad wrought.....	9.00 to 9.50
Pipes and flues.....	7.50 to 8.00
No. 1 busheling.....	9.00 to 9.50
Mixed busheling.....	7.00 to 7.50
Burnt cast.....	7.00 to 7.50
Stove plate.....	9.00 to 9.50
Brake shoes.....	9.50 to 10.00

Buffalo

Record Output at Lackawanna Plant in April—Large Order for Heavy Melting

BUFFALO, May 4.—Buying of pig iron has diminished, although pending business, which would probably be placed if less than \$21, Buffalo, could be done, totals about 15,000 tons. There are a number of sizable individual inquiries, but the buyers are delaying action and ordering by carload lot rather than pay \$21. This base, however, seems to be firm, though there are reports of concessions in silicon differentials. This is denied by furnace interests and other sellers. The Rogers-Brown Iron Co. put a furnace out for relining Monday. Two lots of iron, totalling 950 tons, seem to be the outstanding orders of the week.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdry., sil. 1.75 to 2.25.....	\$21.00
No. 2X foundry, sil. 2.25 to 2.75.....	21.50
No. 1X foundry, sil. 2.75 to 3.25.....	22.50
Malleable, sil. up to 2.25.....	21.00
Basic.....	20.00
Lake Superior charcoal.....	29.28

Finished Iron and Steel.—Bars are holding at 2.265c., Buffalo, in most instances, although 2.165c. is reported to have been done on large, or highly competitive, tonnages. Shapes and plates are holding at 2.165c., Buffalo. Business in semi-finished steel is fair, with prices firm at \$36, Pittsburgh or Youngstown, for sheet bars and \$35 for billets. In bolts prices are reported strong. The volume of business of one local interest is running only 5 per cent below that for last month and is ahead of bookings in February. Shipments are on a par with those last month, and while a slight letup is expected shortly, a continuation of reasonably good business is looked for. Railroad demand is good and automobile demand is spotty. April production constituted a record at the Lackawanna plant of the

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes.....	3.40c.
Bars, mild steel or iron.....	3.30c.
Reinforcing bars.....	3.30c.
Hoops.....	4.00c. to 4.25c.
Bands.....	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares.....	4.35c.
Open-hearth spring steel.....	4.75c. to 5.75c.
No. 28 black sheets.....	4.10c. to 4.30c.
No. 10 blue annealed sheets.....	3.60c.
No. 28 galvanized sheets.....	5.25c. to 5.40c.
Structural rivets.....	3.75c.
Small rivets.....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base per 100-lb. keg..	3.15
Chain, per 100 lb.....	7.55
Net per 100 Ft.	
Lap welded steel boiler tubes, 2-in.....	\$18.00
4-in.....	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.....	39.00

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes.....	3.40c.
Mild steel bars.....	3.30c.
Cold-finished shapes.....	4.45c.
Rounds.....	3.95c.
No. 28 black sheets.....	4.60c.
No. 10 blue annealed sheets.....	3.90c.
No. 28 galvanized sheets.....	5.75c.
Common wire nails, base per keg.....	\$3.90
Black wire, base per 100 lb.....	3.90

Bethlehem Steel Corporation—145,000 tons of steel ingots. Sheets are weaker. Black sheets are being sold at 3.25c., base Pittsburgh, and galvanized at 4.50c.; blue annealed sheets are holding at 2.50c. Warehouse interests report business in April was heavier than in March. An inquiry is out for 100 tons of reinforcing bars for a new water tower in Buffalo.

Old Material.—Considerable activity took place in the heavy melting steel market over the week-end, when one consumer is said to have purchased 10,000 to 15,000 tons. Dealers are now paying \$15.75 to \$16 to obtain material for this order, and the mill is said to have paid \$16.25 for the steel, which was selected No. 1. Another mill continues to offer \$15 for the grade of steel it uses and is apparently getting small lots at that figure. This mill is likewise buying hydraulic compressed and No. 1 busheling at \$1.50 a ton below the price of heavy melting steel. Scrap is coming out more freely, and railroad lists which closed early this week were fairly heavy. The Pennsylvania Railroad alone had a list of 50,000 tons. Good selected No. 1 heavy melting steel is scarce, and there is keen competition among dealers to pick up the necessary material to fill their orders.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel.....	\$15.00 to \$15.25
Selected No. 1 heavy melting steel.....	16.00 to 16.50
Low phosphorus.....	17.50 to 18.00
No. 1 railroad wrought.....	14.00 to 14.50
Car wheels.....	17.00 to 17.50
Machine shop turnings.....	10.25 to 10.75
Mixed borings and turnings.....	12.00 to 12.50
Cast iron borings.....	12.00 to 12.50
No. 1 busheling.....	14.00 to 14.50
Stove plate.....	14.00 to 14.50
Grate bars.....	13.00 to 13.50
Hand-bundled sheets.....	10.00 to 10.50
Hydraulic compressed.....	14.50 to 15.00
No. 1 machinery cast.....	17.00 to 17.50
Railroad malleable.....	21.00 to 22.00
Iron axles.....	24.00 to 25.00
Steel axles.....	16.00 to 16.50

Some Reductions in Old Material at Detroit

DETROIT, May 4.—Reductions of 50c. per ton on borings, short turnings and long turnings, also hydraulic compressed scrap, evidences a further weakness in the market in this district on old material. The opinion generally seems to be that all grades are about at the bottom. A further indication that prices have about reached the low mark is that dealers are considering yarding material in the very near future.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel.....	\$13.25 to \$13.75
Borings and short turnings.....	8.75 to 9.25
Long turnings.....	7.50 to 8.00
No. 1 machinery cast.....	17.00 to 18.00
Automobile cast.....	21.50 to 22.50
Hydraulic compressed.....	10.50 to 11.00
Stove plate.....	13.50 to 14.50
No. 1 busheling.....	11.25 to 11.75
Sheet clippings.....	7.00 to 7.50
Flashings.....	10.00 to 10.50

Foremen and supervisors—their selection, development and compensation—will be the main theme of a conference of the production executives' division of the American Management Association, to be held at Silver Bay, Lake George, N. Y., June 30, July 1 and 2. Among several papers will be one by Frank P. Cox, manager of the West Lynn works of the General Electric Co., on the subject of "Foreman Development."

Railroads Propose Changes in Steel Rates from Southern Producing Points

WASHINGTON, May 4.—Proposed rates on iron and steel products in carloads and less-than-carload lots from Southern producing points to the Southeast, Virginia points, Ohio River crossings, and Trunk Line, New England, and the Pittsburgh-Buffalo territories, have been issued by Southern railroads through their Fourth Section Committee. The adjustment is intended to be in alignment with the decision of the Interstate Commerce Commission in the so-called Southeastern rate case.

The changes in iron and steel rates include both decreases and increases. A conference on the proposed revision will be held at the committee offices in Atlanta, Ga., on May 5. Typical of the proposed rates, stated in cents per 100 lb., are the following:

To	Present Rates		Suggested Rates
	Note 1	Note 2	
From Alabama City, Ala.: Attalla, Ala.: Gadsden, Ala.			
Nashville, Tenn.....	26c.		24c.
Knoxville, Tenn.....	18½c.	*18½c.	24c.
Atlanta, Ga.....	21½c.	*20c.	20c.
Macon, Ga.....	27c.	21½c.	25c.
Jacksonville, Fla.....	21½c.		38c.
Tallahassee, Fla.....		*42½c.	38c.
Norfolk, Va.....	28½c.		47c.
Richmond, Va.....	28½c.		47c.
Fayetteville, N. C.....	42½c.		44c.
Wilmington, N. C.....	28½c.		44c.
Spartanburg, S. C.....	31c.		31c.
Memphis, Tenn.....	34c.		31c.
Meridian, Miss.....	31c.		25c.
Vicksburg, Miss.....	36c.		34c.
Mobile, Ala.....	35c.		32c.
New Orleans, La.....	39c.		38c.
Cincinnati.....	35c.		
Louisville, Ky.....	35c.		
Cairo, Ill.....	35c.		
St. Louis.....	42c.		44c.

Note 1—Applies on articles taking special iron rates.

Note 2—Applies on bars, bands, boiler, hoop, plate and rod iron in carloads; where no specific rates are shown, special iron rates apply.

*From Alabama City, Ala., only.

Cleveland Chamber Asks Suspension of New C. F. A. Rates

CLEVELAND, May 3.—The Cleveland Chamber of Commerce will ask for the suspension of the new freight rates that have been announced by the Central Freight Association roads to become effective May 29, which were authorized by the Interstate Commerce Commission and are an application of the decision in the Jones & Laughlin rate case. The chamber's petition will ask for the suspension pending an inquiry into the effect and legality of the proposed rates. The change in rates, according to the contention of the chamber, would impose a serious handicap on Cleveland in competition with Pittsburgh, Youngstown and Buffalo for business in Indiana, Illinois, Iowa, Mississippi River points and also in some cities in Ohio. The new tariff would place in effect reductions in rates from some of the points east of Cleveland to markets west of here and would also reduce Cleveland's rates to these markets, but the effect of the reductions in most cases, it is contended, would be to diminish or wipe out what advantage Cleveland has in freight rates on steel products.

"In many instances Cleveland's advantage over Youngstown would be entirely destroyed," according to Frank H. Baer, traffic commissioner of the Chamber of Commerce. "Cleveland is already at a disadvantage in competition with the Pittsburgh district for east-bound shipments, while in Indiana and Illinois the present compensating recognition would be destroyed. Cleveland would be left with only short-haul points and the lower peninsula of Michigan as her recognized market for iron and steel products."

The new rates, it is asserted, are causing dissatisfaction in various other steel producing centers, including Canton, Massillon and Lorain, Ohio.

The Tyler Tube & Pipe Co., Washington, Pa., now is making lapweld steel pipe in diameters of 2 in to 8 in.

NON-FERROUS METAL MARKETS

The Week's Prices	Cents per Pound for Early Delivery		Apr. 28	Apr. 29	Apr. 30	May 1	May 3	May 4
Lake copper, New York.....			14.12½	14.12½	14.00	14.00	14.00	14.00
Electrolytic copper, N. Y.*..			13.75	13.62½	13.62½	13.62½	13.62½	13.62½
Straits tin, spot, New York..			63.12½	63.37½	62.87½	63.00†	63.25†	63.25†
Lead, New York.....			7.85	7.85	7.85	7.85	7.85	7.85
Lead, St. Louis.....			7.60	7.60	7.60	7.60	7.60	7.60
Zinc, New York.....			7.20	7.12½	7.07½	7.07½	7.12½	7.05
Zinc, St. Louis.....			6.85	6.77½	6.72½	6.72½	6.77½	6.70

*Refinery quotation; delivered price ¼c. higher. †Nominal.

NEW YORK, May 4.—The general strike in England is affecting markets here and both buyers and sellers are awaiting developments. Prices in the meantime are fairly steady thus far. Copper is a little easier than a week ago. The tin market will feel the effects of the British strike first, but thus far prices are only nominal. The lead market is practically unchanged, but zinc has declined quite sharply.

Copper.—It is too early yet to measure the effect of the strike in England on the copper market. About the middle of last week prices eased off about ¼c. to about 13.87½c., delivered, where quotations for electrolytic copper have remained ever since. Not very much business is reported to have been done and now producers and consumers are awaiting developments. The market is exceedingly quiet and without feature. Lake copper is quoted at 14c., delivered.

Copper Averages.—The average price of Lake copper for the month of April, based on daily quotations in THE IRON AGE, was 14.09c. delivered. The average price of electrolytic copper was 13.69c., refinery, or 13.94c., delivered.

Tin.—A very good volume of business in Straits tin is reported to have been done up to the close of business on Friday, April 30, the total amounting to 1300 to 1500 tons. Buying was quite general, involving deliveries into August, but spot metal was scarce and in many cases unobtainable. With the advent of the general strike, which virtually began yesterday, almost no business has been done until today. The tendency

over there is to offer very little metal and sellers and buyers both here and there were inclined to await developments. Today, however, about 600 tons of futures was sold at 60.62½c. to 61c. for June and 58.75c. to 59.25c. for July. Spot Straits tin today was quoted at 63.25c., New York, entirely nominal and unobtainable. Prices in London today were sharply less than a week ago, which would be natural under the circumstances, with spot standard quoted at £268 5s., future standard at £264 10s. and spot Straits at £275 15s. The Singapore price today was £265 15s. The feature of these prices is the reduction of the premium for spot delivery. The statistics for April revealed an increase of 1236 tons in the world's visible supply, which was contrary to expectations, a decrease having been looked for. The increase is due to large shipments from the East and to heavy shipments of Banca and Chinese metal. The monthly deliveries for April were 7105 tons with 1354 tons reported in stock and landing on April 30.

Lead.—The market is featureless and practically without change. The leading interest continues to quote 7.85c., New York, as its contract price. In the outside market quotations range from 7.60c. to 7.70c., St. Louis, or 7.85c. to 7.95c., New York. Prompt lead continues to be scarce. The tendency now is to await developments abroad.

Zinc.—The market has gradually sagged, largely by its own weight, until Prime western zinc today was quoted at 6.70c. to 6.75c., St. Louis, or 7.05c. to 7.10c., New York. Purchases of several hundred tons were made one day, after which the price advanced slightly, but it declined again today on advices from Europe. The market is lifeless and marking time.

Nickel.—Ingot nickel in wholesale lots is quoted unchanged at 35c., with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Antimony.—The market has weakened decidedly with Chinese metal quoted at 12.50c. to 12.75c., New

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig.....	64.00c. to 64.75c.
Tin, bar.....	67.50c. to 68.00c.
Copper, Lake.....	15.50c.
Copper, electrolytic.....	15.25c.
Copper, casting.....	15.00c.
Zinc, slab.....	8.25c. to 8.75c.
Lead, American pig.....	8.75c. to 9.75c.
Lead, bar.....	11.25c. to 12.25c.
Antimony, Asiatic.....	16.00c. to 17.00c.
Aluminum, No. 1 ingots for remelting (guaranteed over 99 per cent pure).....	30.00c. to 30.50c.
Babbitt metal, commercial grade.....	30.00c. to 35.00c.
Solder, ½ and ⅓ guaranteed.....	41.00c.

Metal from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig.....	68.50c.
Tin, bar.....	70.50c.
Copper, Lake.....	15.00c.
Copper, electrolytic.....	15.00c.
Copper, casting.....	14.00c.
Zinc, slab.....	8.75c.
Lead, American pig.....	8.75c. to 9.25c.
Antimony, Asiatic.....	22.50c.
Lead, bar.....	11.00c.
Babbitt metal, medium grade.....	23.50c.
Babbitt metal, high grade.....	72.00c.
Solder, 50-50.....	41.00c.

Rolled Metal from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass.....	18½c. to 19½c.
Copper, hot rolled.....	22½c. to 23½c.
Copper, cold rolled, 14 oz. and heavier.....	24½c. to 25½c.
Seamless Tubes—	
Brass.....	23½c. to 24½c.
Copper.....	24½c. to 25½c.
Brazed Brass Tubes.....	26½c. to 27½c.
Brass Rods.....	16½c. to 17½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks.....	12.75c.
Zinc sheets, open.....	13.25c.

Non-Ferrous Rolled Products

Mill prices in brass, bronze and copper products are unchanged. Zinc and lead sheets were reduced about May 1, zinc sheets ½c. per lb. to 11.25c. and lead full sheets ¼c. to 11.50c.

List Prices Per Lb. f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass.....	18.87½c.
Copper, hot rolled.....	22.50c.
Zinc.....	11.25c.
Lead (full sheets).....	11.50c.
Seamless Tubes—	
High brass.....	23.50c.
Copper.....	24.25c.
Rods—	
High brass.....	16.62½c.
Naval brass.....	19.37½c.
Wire—	
Copper.....	15.75c.
High brass.....	19.37½c.
Copper in Rolls.....	21.37½c.
Brazed Brass Tubing.....	26.87½c.

Aluminum Products in Ton Lots

The curload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 36 in. wide.....	37.50c.
Tubes, base.....	48.00c.
Machine rods.....	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

Sheets—		Base per Lb.
High brass	.....	18 $\frac{3}{4}$ c. to 19 $\frac{1}{4}$ c.
Copper, hot rolled	.....	22 $\frac{1}{4}$ c.
Copper, cold rolled, 14 oz. and heavier	.....	24 $\frac{3}{4}$ c.
Zinc	.....	12 $\frac{1}{2}$ c.
Lead, wide	.....	11.08c.
Seamless Tubes—		
Brass	.....	24 $\frac{1}{4}$ c. to 25 $\frac{1}{4}$ c.
Copper	.....	26 $\frac{3}{4}$ c. to 29 $\frac{1}{4}$ c.
Brazed Brass Tubes	.....	16 $\frac{3}{4}$ c.
Brass Rods	.....

York, duty paid, for spot and early delivery, with May shipments from China quoted at 12c.

Aluminum.—Virgin metal, 98 to 99 per cent, is obtainable as ingot at 27c. to 28c. per lb., delivered.

Warehouse Business.—The slump in the London market on tin as a result of the general strike is reflected slightly in the prices of small lots from stock in New York. The market on antimony has registered a marked decline from its recent high level, the price today being about 3c. per lb. lower on sales out of stock. Zinc sheets, which did not decline in January as had been expected, have been reduced $\frac{1}{2}$ c. per lb.

CHICAGO, May 4.—The spot market for antimony is off 4.50c. as the result of offerings of this commodity for future delivery from China at 12c. to 12.50c. Copper and lead are a trifle stronger, and zinc and tin

Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.75c.	12.25c.
Copper, heavy and wire	11.50c.	12.50c.
Copper, light and bottoms	9.50c.	10.75c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	7.50c.
Heavy machine composition	8.75c.	10.00c.
No. 1 yellow brass turnings	8.25c.	9.00c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	6.50c.	7.00c.
Lead, tea	5.00c.	6.00c.
Zinc	4.00c.	4.75c.
Cast aluminum	18.00c.	19.50c.
Sheet aluminum	18.00c.	19.50c.

have eased off. The old metal market is quiet and prices are unchanged except for aluminum, which has dropped to 19c. We quote, in carload lots, Lake copper, 14.12 $\frac{1}{2}$ c.; tin, 64.50c.; lead, 7.80c.; zinc, 6.95c.; in less than carload lots, antimony, 15.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.50c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 6.75c.; zinc, 5c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c. aluminum, 19c.; all being dealers' prices for less than carload lots.

OBITUARY

W. B. LAUFMAN, active in the sheet and tin plate business until the company in which he was interested was absorbed by the American Sheet Steel Co. 25 years ago, died at his home in Pittsburgh, April 28. He was born in Pittsburgh 77 years ago and was a graduate of the Western University of Pennsylvania (now University of Pittsburgh). In early life he was engaged with his father, P. H. Laufman, in the hardware business in Pittsburgh. In 1876, in association with his father, he organized P. H. Laufman & Co., which operated a sheet mill at Apollo, Pa., and later started plants at Freeport and Saltsburg, Pa., all being acquired by the American Sheet Steel Co. in 1900. Mr. Laufman for several years afterward was engaged in commercial galvanizing, in partnership with his brother, M. Laufman.

CHARLES HENRY COIT, founder of the Cleveland Stamping & Tool Co. and secretary and treasurer of that company from its organization until a year ago, when the company discontinued business, died April 27, at the age of 62 years.

DAVID M. DILLON, president and founder of the D. M. Dillon Steam Boiler Works, Fitchburg, Mass., died in that city, April 27, at the age of 83 years. He had learned the steam boiler business in Worcester when he moved to Fitchburg in 1870 to establish the nucleus of what came to be one of the largest industries of its kind in New England. Mr. Dillon is reported to have been the inventor and builder of the first steel boiler ever manufactured. It was built to exhibit at the Mechanics Fair, Boston, in Quincy Market in 1874, and at the time was severely criticized because steel was substituted for iron. He held a prominent place in the banking and business life of his city, and was a director in various manufacturing corporations other than his own. He leaves a daughter and four sons, Fred N., D. Frank and Walter S. of Fitchburg, and H. Lowell Dillon of New York.

MORRIS WUERPEL, assistant to president General Railway Signal Co., died at his home in Rochester, N. Y., on April 28. He was 55 years of age and

had been connected with the company since its incorporation.

THOMAS WRIGLEY, president Thomas Wrigley Co., 504 Sherman Street, Chicago, manufacturer of special machinery, died on April 27, after an illness of three days. Mr. Wrigley, who was 91 years old, was born in Paterson, N. J. He went to Chicago in 1868 and entered the service of Crane Co., where he was foreman of the machine department for a number of years.

GEORGE E. GIFFORD, well known in the steel trade through his long connection with structural interests, died at his home in Maplewood, N. J., on April 14, after an illness of two months. Mr. Gifford served as secretary of the Bridge Builders' and Structural Society from its organization in 1911 until it was disbanded in 1922, following the Supreme Court ruling on open price trade associations. He was a life member of the American Society of Civil Engineers. He was born in Stamford, Conn., in 1864, and graduated from Rensselaer Polytechnic Institute in the class of 1887. Among his various connections were those of contracting engineer for the King Bridge Co., Cleveland, in charge of the New York district; chief engineer of Milliken Brothers, Inc., New York, and vice-president of the Bolles-Gifford Co., later the Jobson-Gifford Co., structural contractors, both of New York. This latter office he held at the time of his death. He leaves his wife, two sons and a daughter.

MAJOR ALBERT F. WALKER, Boston sales agent American Steel & Wire Co., died at his home in Winthrop, Mass., April 22, at the age of 54 years. He had been ill for several months with heart trouble. Major Walker was born in Worcester, the son of Albert Wesley Walker, himself an old Washburn & Moen man. He entered the Worcester office as a boy. He showed his ability in the cost department and as a salesman, and about 12 years ago was placed at the head of the Boston office. He was prominent in the Massachusetts National Guard for many years, and served as a special aide on the staff of Governor Channing H. Cox. He was prominent as a Mason, and in the Ancient and Honorable Artillery Company of Boston. He leaves his wife, two sons and two daughters.

FABRICATED STEEL

Week's Contracts Exceed 31,000 Tons and New Work Up for Bids Is 23,000 Tons

Structural steel awards of the week are swelled by several fair-sized tonnages in New York, including an office building at Broadway and Barclay Street requiring 6500 tons. A Baltimore company was awarded the contract for a gas holder to be erected in California that will take 3000 tons of plates. A New York office building, on which bids are being taken, requires 7000 tons. The total of work pending is close to 23,000 tons. Awards follow:

NEW YORK, 4045 tons in the following awards reported to the Structural Steel Board of Trade: Loft building, 214-218 West Twenty-eighth Street, New York, and a theater at First Avenue and Eighty-ninth Street, New York, to Hinkle Iron Co.; office building, 660 Madison Avenue, New York, to the Easton Structural Steel Co.; apartment, 687 Lexington Avenue, and a loft building, 251-255 West Thirtieth Street, New York, to the Paterson Bridge Co.; bank building in Brooklyn, N. Y., church at Saddle River, N. J., St. Mary's Church, Flushing, N. Y., and St. Elizabeth of Hungary Hospital, Fort Washington Avenue and 190th Street, New York, to the McClintic-Marshall Co.

NEW YORK, 300 tons, theater and office building at Second Avenue and Fourth Street, to Levering & Garrigues Co.

NEW YORK, 550 tons, garage at 241 West Twenty-eighth Street, public school No. 124 in Queens Borough, and alterations to Astor Theater, Broadway, all to Harris Structural Steel Co.

NEW YORK, 6500 tons, office building at Broadway and Barclay Street, to Hay Foundry & Iron Works.

NEW YORK, 800 tons, public school No. 44 in Borough of Richmond, to Harris Structural Steel Co.

NEW YORK, 750 tons, office building at 420 Madison Avenue, to Harris Structural Steel Co.

NEW YORK, 1300 tons, office building at 365 Lexington Avenue, to Harris Structural Steel Co.

NEW YORK, 450 tons, apartment building at Park Avenue and Thirty-eight Street, to Paterson Bridge Co.

NEW YORK, 1800 tons, loft building at Lexington Avenue and Twenty-sixth Street, to Hay Foundry & Iron Works.

BUFFALO, 300 tons, Williams Street bridge, to American Bridge Co.

ROCHESTER, N. Y., 150 tons, Eastman Kodak Co., to American Bridge Co.

HAZLETON, PA., 1000 tons, high school, to Bethlehem Fabricators, Inc.

PHILADELPHIA, 325 tons, Brown Station, for New York Central Lines, to Jones & Laughlin Steel Corporation.

PHILADELPHIA, 120 tons, public school, to Bethlehem Construction Co.

PHILADELPHIA, 160 tons, public school, to Bethlehem Construction Co.

BETHLEHEM, PA., 100 tons, Washington grade school, to Bethlehem Construction Co.

WEST PITTSBURGH, PA., 860 tons, crane runway for the American Gas & Electric Co., to Indiana Bridge Co.

BROCKWAY, PA., 350 tons, sewer pipe plant for Brockway Clay Co., to American Bridge Co.

ROANOKE, VA., 900 tons, 1,500,000-cu. ft. gas holder for Roanoke Gas Light Co., to Stacey Mfg. Co., Cincinnati.

DURHAM, N. C., 170 tons, boiler house for Duke University, to an unnamed fabricator.

SEABOARD AIR LINE, 380 tons, bridge in Georgia, to an unnamed fabricator.

LOUISVILLE, KY., 630 tons, United States Engineer's Office, to American Car & Foundry Co.

CINCINNATI, 125 tons, garage for Jacob Stilpass, to General Iron Works Co., Cincinnati.

TOLEDO, OHIO, 300 tons, Lucas County highway bridge, to American Bridge Co.

OHIO, 300 tons, State Highway Department, three bridges in Lucas County, to American Bridge Co.

DETROIT, 300 tons, Consolidated Paper Co., to Whitehead & Kales Co.

DETROIT, 650 tons, Wayne County Road Commission, grade separation work, to Bethlehem Steel Co.

DETROIT, 115 tons, Michigan Central Railroad bridge, to American Bridge Co.

PEORIA, ILL., 150 tons, ammonia plant for Commercial Solvents Corporation, to Mississippi Valley Structural Steel Co.

VENICE, ILL., 950 tons, power house for Illinois Power & Light Co., to McClintic-Marshall Co.

MILWAUKEE, 250 tons, enameling shop for Fuller-Warren Co., stoves and ranges, to Worden-Allen Co.

RACINE, WIS., 200 tons, additions to Modine Mfg. Co. automobile radiator plant, to Wisconsin Bridge & Iron Co.

NEENAH, WIS., 300 tons, State highway bridges at North Commercial Street, to Wausau Iron Works.

DULUTH, MINN., 150 tons, East End high school, to National Iron Works, Duluth.

ORANGE, TEX., 350 tons, highway bridge over Sabine River, to Missouri Valley Bridge & Iron Co.

PUEBLO, COLO., 1500 tons, mill building for Colorado Fuel & Iron Co., to American Bridge Co.

SAN FRANCISCO, 100 tons, Otis Elevator Co., to unnamed Eastern mill.

SELEY, CAL., 100 tons plates and shapes, American Smelting & Refining Co., to Pacific Coast Engineering Co.

LOS ANGELES, 550 tons, municipal garage, to Baker Iron Works.

LOS ANGELES, 3000 tons plates, gas holder for Southern California Gas Co., to Bartlett Hayward Co., Baltimore.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

NEW YORK, 7000 tons, office building for Consolidated Gas Co., Fourteenth Street and Irving Place.

NEW YORK, 900 tons, public schools Nos. 202 and 208 in Borough of Brooklyn.

WHITE PLAINS, N. Y., 350 tons, office and garage.

CORNING, N. Y., 125 tons, public school.

READVILLE, MASS., 300 tons, shop for New York, New Haven & Hartford Railroad.

NEW BRITAIN, CONN., 200 tons, building for Commercial Trust Co.

PHILADELPHIA, 5000 tons, City Hall Annex; previously reported as for 3000 tons.

BIRMINGHAM, 1500 tons, Jefferson Hotel.

CINCINNATI, 1800 tons, Chamber of Commerce building; bids close May 15.

CLEVELAND, 250 tons, Pearl Street Temple.

DETROIT, 240 tons, Michigan Bell Telephone Co., bids taken.

DETROIT, 1300 tons, Eagle Avenue grade separation.

SAN FRANCISCO, 2000 tons, Fox Theater.

SAN FRANCISCO, 700 tons, Commercial Union Building addition; bids May 4.

ALAMEDA, CAL., 180 tons, Masonic Temple; bids in.

BERKELEY, CAL., 150 tons, Claremont School; bids being taken.

BERKELEY, CAL., 300 tons, Claremont Theater; bids being taken.

OAKLAND, CAL., 300 tons, ferry slip for Santa Fe Railroad; bids in.

OAKLAND, CAL., 100 tons, pipe line for East Bay Municipal Utility District; bids May 14.

LOS ANGELES, 3100 tons, 10 80,000-bbl. tanks for the Shell Oil Co. for erection at Wilmington, Cal.; bids May 26.

MANILA, P. I., 3200 tons, pipe line for Manila waterworks, bids taken by Atlantic, Gulf & Pacific Co.; Pacific Commercial Co., Manila, representing German interests, low bidder.

RAILROAD EQUIPMENT

Texas & Pacific Orders 300 Automobile Cars—20 Locomotives Bought

The only freight car purchase of note was 300 cars for the Texas & Pacific. The Rock Island has ordered 15 locomotives and the Reading 5. Details follow:

The Rock Island has ordered 10 Mikado and 5 Mountain type locomotives from the American Locomotive Co.

The Reading placed 5 locomotives with the Baldwin Locomotive Works.

The Detroit & Toledo Shore Line is inquiring for 3 Mikado and 3 switching locomotives.

The Texas & Pacific has ordered 300 automobile cars from the American Car & Foundry Co.

The Chicago, Rock Island & Pacific is in the market for 200 steel underframes.

The Nevada Consolidated Copper Co. has ordered 35 Ingoldsby ore cars from the Magor Car Corporation.

The South African Railways, which recently inquired in this country for cars, have ordered 500 4-wheel drop-side bogie wagons in Belgium.

W. M. Smith & Co., First Avenue, Birmingham, are inquiring for 50 hopper standard gage and a number of standard gage flat cars, 40 ft. long and 80,000-lb. capacity.

The Rock Island is inquiring for repairs to 188 all-steel coal cars.

The Muncie & Western is in the market for 50 box cars.

The Public Service Co. of Northern Illinois is inquiring for 1 flat, 2 hopper and 3 gondola cars.

PERSONAL

J. McA. Duncan, for the past 14 years Pittsburgh district manager Westinghouse Electric & Mfg. Co., has been promoted to assistant general sales manager, and W. R. Marshall, who has been Buffalo branch manager, has been named to succeed Mr. Duncan as Pittsburgh district manager. Mr. Duncan, born in Pittsburgh on Jan 23, 1869, has been identified with the Westinghouse Electric & Mfg. Co. since 1886. He takes to his new position an experience in almost every department of the company. The clerical division, the auditing, commercial and shipping departments and the storeroom are some of the places in which he gained his early experience. Mr. Marshall, new Pittsburgh district manager, was born in New Bern, N. C. He was graduated from the North Carolina State College of Agriculture in 1909, and immediately entered the employ of the Westinghouse Machine Co. Following the completion of an apprenticeship course in 1911 he was transferred to the sales department of the company, working from the New York office. During the next five years he specialized in steam apparatus in northern New York and Connecticut. In 1916 he was transferred to the industrial department; in 1919, manager of the industrial department of the New York office. He became branch manager of the Buffalo office in 1922.



J. M C A. D U N C A N

J. C. Ward, president Edgar Allen Steel Co., Inc., Sheffield, England, arrived in New York last week on the Aquitania. His address for the next ten days is the Ritz-Carlton Hotel, Montreal, Canada. He will be in New York later, before returning home.

J. E. Walker, of the H. H. Franklin Mfg. Co., Syracuse, was elected president of the Purchasing Agents of Syracuse and Central New York at a meeting in Hotel Syracuse, Tuesday. Other officers elected are: C. L. Marsters, Norwich Pharmacal Co., Norwich, first vice-president; D. C. Park, Smith & Caffrey, second vice-president; H. G. Dunn, Brown, Lipe Gear Co., treasurer; and W. E. Hopton, Hopton Co., secretary. Directors elected are E. L. A. Forster, W. C. Allen, J. E. Waring, D. Collin; national directors, A. A. Webb and H. W. Mtichell.

J. L. Neudoerfer has been appointed manager tubular sales division, Wheeling Steel Corporation. He was for many years in charge of range boiler and steel barrel sales for the corporation, with headquarters at Portsmouth, Ohio. More recently he had been assistant to Walter B. Higgins, vice-president in charge of sales.

F. B. Hamilton has resigned from the engineering department of the Youngstown Sheet & Tube Co., Youngstown, to become assistant purchasing agent of the Trumbull Steel Co., Warren, Ohio. He has been with the Youngstown company eight years, and is a graduate of Oberlin College.

Theodore H. Harvey, vice-president Ohio Steel Foundry Co., has been appointed general sales manager, covering both the Springfield and Lima plants of the company. He has been connected with the Springfield plant for eight years, having been works

manager until he was made vice-president three years ago. Frank G. Wright, another vice-president, and John R. Hastings, secretary, both of Lima, who have been in the business for many years, have withdrawn from active work. V. T. Hohaus has been appointed works manager at the Springfield plant and W. J. Hayes, sales manager. Both have been connected with the plant for some time.

J. C. Woodson, formerly section engineer in charge of industrial heating, has been appointed manager of the industrial heating engineering department, Westinghouse Electric & Mfg. Co.. A graduate of Oklahoma State University, Mr. Woodson entered the service of the Westinghouse company in 1915. He was assigned in 1916 to the circuit breaker section of the supply engineering department. Since 1920 he has been engaged in industrial heating work.

O. C. Sheldon, formerly advertising manager Riley Stoker Corporation, Worcester, Mass., has been transferred to the Cincinnati office of that company as district manager.

Harry Heffrin, formerly of the Kittanning Iron & Steel Co., Kittanning, Pa., has been appointed blast furnace superintendent in charge of operations of the top furnace department of the Wheeling Steel Corporation, Wheeling, W. Va. He succeeds W. J. Huge, who resigned.

P. E. Floyd has been appointed manager of sales in charge of the Chicago office and warehouse, Ludlum Steel Co., Watervliet, N. Y. He succeeds H. W. Edwards, who has been transferred to Southern territory, with headquarters at Houston, Tex.

President Julius Kahn of the Truscon Steel Co., and Thomas H. Kane, vice-president and works manager, are on their way for a two-months trip to Japan, where they will inspect the company's rebuilt plant, which supplies its Far Eastern trade.

R. F. Fiske, for several years manager of the R. D. Nuttall Co. eastern office at Philadelphia, has been appointed sales manager, in place of Q. W. Hershey. John E. Mullen, of the home office sales force, has been made assistant sales manager.

L. R. Meisenhelter, formerly a Cincinnati machine tool manufacturer, who has been director of exhibits of the Sesqui-Centennial Exposition, Philadelphia, has retired from that position, following differences with the executive board of the exposition.

Fred A. Poor, formerly president, has been elected chairman of the board of directors, P. & M. Co., Railway Exchange Building, Chicago, and Philip W. Moore, formerly vice-president, has been elected president.

Fred A. Preston has been elected president of the Maintenance Equipment Co., Chicago.

Arthur D. Little, chemist and president Arthur D. Little, Inc., Cambridge, Mass., has been added to the membership of the research committee on the corrosion of piping, by the council of the American Society of Mechanical Engineers.

Ralph E. Flanders, manager Jones & Lamson Machine Co., Springfield, Vt., has been appointed as the representative of the American Society of Mechanical Engineers on the Anglo-American conference committee dealing with the international standardization of screw threads. One suggestion made before this committee was that a new international standard be adopted which should be a compromise between the United States standard and the Whitworth British threads. It was stated that practically all nuts and bolts in either present system would fit such a compromise with sufficient exactness, and thus obviate the usual confusion attending such a change.

John D. A. Morrow has been elected vice-president in charge of sales Pittsburgh Coal Co., succeeding James H. Woods, resigned. For the past two years Mr. Morrow has been director of sales Joy Mfg. Co., manufacturer of mechanical coal loading and mining equipment. Before that he was president Morrow-Callahan Coal Co.

Fred Hughes Moyer, general superintendent United Alloy Steel Corporation, Canton, Ohio, has resigned, to go into business as consulting and development engineer, at 1530 Shorb Avenue, N. W., Canton. Mr. Moyer was chief engineer for the United Alloy from Jan. 1, 1923, until Jan. 1, 1925, when he became assistant to the vice-president in charge of operations. A year later he was appointed general superintendent of operations for the entire corporation. Mr. Moyer, who was graduated from Cornell University in 1899, has had lifelong experience in the steel business, starting with the Wellman, Seaver, Morgan Co., Cleveland, in 1900 in the design and construction of blast furnace and steel works equipment. He then entered the employ of the



F. H. MOYER

United States Steel Corporation and held the following positions: In charge of engineering department Carnegie Steel Co., Pittsburgh, under the direction of E. E. Slick, chief engineer; chief engineer Clairton works, Carnegie Steel Co.; chief engineer Indiana Steel Co., Gary, Ind. During the World War Mr. Moyer became chief engineer Cambria Steel Co., subsidiary of the Midvale Steel & Ordnance Co., at Johnstown, Pa. He left Cambria to become assistant to the works manager Pittsburgh Crucible Steel Co., Midland, Pa.

T. L. Clossen, formerly in charge of sales of the Empire Rolling Mill Co., Cleveland, has been appointed district sales manager for Ohio for the Seneca Iron & Steel Co., Buffalo, which has established an office at 915 Guarantee Title Building, Cleveland. E. Dorfzuan will cooperate with Mr. Clossen.

Philip F. Murray, who recently resigned as resident sales manager for the M. A. Hanna Co., in Buffalo, has become associated with the Willys-Overland Co., with headquarters in Philadelphia.

Francis A. Emmons, for the past two years advertising manager of Foote Brothers Gear & Machine Co., Chicago, has been appointed sales manager.

F. S. Knowles has been elected president and general manager La Salle Tool Co., La Salle, Ill., manufacturer of automatic, plain and surface and twist drill grinders.

Jefferson G. Eberlein has been elected president Donaldson Iron Co., Emaus, Pa., manufacturer of cast iron pipe. He succeeds the late John D. Ormrod. Mr. Eberlein has been connected with the Donaldson Iron Co. for 43 years, having started as an office boy. He served as secretary and treasurer for many years.

J. B. Chalmers, formerly employed by the American Sheet & Tin Plate Co., Gary, Ind., has recently been made superintendent of the new tin mills of the Youngstown Sheet & Tube Co., Indiana Harbor, Ind.

O. C. Steinert is chief engineer of the Pittsburgh Steel Co., Monessen, Pa.

Willard S. Haring has been appointed general manager of sales of the Alan Wood Iron & Steel Co., Philadelphia, succeeding Charles O. Hadly, who was elected last week vice-president in charge of sales. Mr. Haring, who has been with the Alan Wood company for 22 years, has been for a number of years assistant general manager of sales.

John D. Brown has been appointed district sales manager of the home office territory, by the Trumbull Steel Co., Warren, Ohio, succeeding Avery C. Adams, recently advanced to assistant general manager of sales.

John Fielding, Jr., has been appointed purchasing agent McKinney Steel Co., Cleveland. He has been associated with the company seven years and previous to his promotion was assistant to Donald B. Gillies, vice-president in charge of mines, with headquarters in Cleveland.

T. H. Rogers, formerly general superintendent of the Follansbee Brothers Co. West Virginia plant, is now associated with the Weirton Steel Co., in the automobile sheet division.

R. H. Stuhler, formerly general superintendent McKeesport Tin Plate Co., has resigned, after eight years of service.

L. Dwight Granger, Wickwire Spencer Steel Co., Worcester, Mass., will give a non-technical account of matters pertaining to wire springs, before the Boston chapter of the American Society for Steel Treating, at the Massachusetts Institute of Technology on Friday evening, May 7.

John Bjorn, general superintendent Nash Motors Co., Kenosha, Wis., retired April 30 after a service of 36 years. He will devote his time to travel and recreation. Charles W. Nash and other officials tendered him a banquet, at which high praise was given the retiring superintendent. Mr. Bjorn was born in Sweden in 1861 and was trained as a construction engineer, later becoming a locomotive driver. He came to America in 1889 and on April 27, 1890, secured a position as a machinist in the bicycle plant of the Gormely & Jeffery Co., at Kenosha, which later became the Thomas B. Jeffery Co., automobile manufacturer. When Mr. Nash acquired the Jeffery works in 1916, he appointed Mr. Bjorn general superintendent.

T. T. Read, who was recently elected assistant secretary of the American Institute of Mining and Metallurgical Engineers, received his early education in the Boys' High School of Brooklyn and was graduated from the School of Mines, Columbia University, in 1902 with the degree of engineer of mines. The same university conferred upon him the degree of doctor of philosophy in 1906. In his earlier years he was an instructor in mining and metallurgy at the University of Wyoming and a professor of mining and metallurgy at Colorado College. From 1908 to 1910 he was professor of metallurgy at Pei Yang University, Tientsin, China. He was associate editor of the *Mining and Scientific Press*, San Francisco, from 1911 to 1915 and during this period he visited the most important metallurgical and mining enterprises in the United States. From 1916 to 1918 he was chief of the service division, technical department, New Jersey Zinc Co. Since 1919 he has served the United States Bureau of Mines in various capacities, lately as director of safety service, where he was in close collaboration with Dr. H. Foster Bain, the new secretary of the institute. His contributions to the literature of mining and metallurgy have been numerous. He entered upon his new duties March 1.

Edward C. Moore, Erie City Iron Works, Erie, Pa., has been re-elected president of the Manufacturers' Association of that city.

Trade Changes

The Cincinnati Engineering Tool Co., 4659 Spring Grove Avenue, Cincinnati, manufacturer of automatic chucking machines, has appointed the Reed-Prentice Co., Worcester, Mass., as sales agent in the Detroit territory. The latter also has exclusive selling rights in southern New York and New England, as announced in *The Iron Age* of April 22.

The Ohio Brass Co., Mansfield, Ohio, has moved its Chicago office from room 1217 to room 1714, Fisher Building, 343 South Dearborn Street.

D. C. Oviatt & Co., new and used machinery, Cleveland, have moved from 1196 St. Clair Avenue to 2160 Lakeside Avenue, being now adjacent to the warehouse.

The General Electric Co., Pittsfield, Mass., has completed the transfer of its fan motor department to the General Electric Co. plant, Bridgeport, Conn.

The Independent Register & Mfg. Co., Cleveland, manufacturer of wrought steel registers and ventilators, has moved to a new factory at 3747 East Ninety-third Street. E. C. Fox is proprietor.

The Shippers' Car Line Corporation, 165 Broadway, New York, has moved to 39 Church Street, New York.

The Baker & McDowell Hardware Co., 405-407 Franklin Street, Natchez, Miss., has gone out of business.

The stockholders of the Insurance Foundry Co., Covington, Ky., have voted to shut down permanently and wind up the business. George H. Uekotter, 2870 Erie Avenue, Hyde Park, Cincinnati, and P. O'Donnell are handling the matter.

The American Car & Foundry Co. has removed its general offices from 165 Broadway to 39 Church Street, New York.

The Central Iron & Steel Co., Harrisburg, Pa., has removed its New York sales office from 2 Rector Street to the new Evening Post Building on Washington Street. R. H. Maddocks is district sales manager.

The T. Wilke Machine Works, 617 Center Avenue, Sheboygan, Wis., specializing in marine and millwright repairs, has been leased by Frank Wagner, who has been assistant to Traugott Wilke, proprietor, for the past six years. Mr. Wilke is in ill health and has been obliged to retire from active affairs.

Milwaukee territorial representation of the Harbison-Walker refractories business has been changed to a direct branch office of the Harbison-Walker Sales Co. of Pittsburgh. H. T. Lewis continues as branch manager in the present quarters at 28 South Canal Street.

By unanimous consent of stockholders, the Kenosha Foundry Co., Kenosha, Wis., incorporated with \$100,000 capital stock five years ago to manufacture soil pipe and fittings, has liquidated its entire business and filed articles of dissolution. Frank J. Kraft was president and N. J. Werner, secretary. The building has been sold to Peter Frandsen, of Kenosha, as a general machinery warehouse and storage.

The A. & F. Brown Co., engineer, founder and machinist, 79 Barclay Street, New York, has moved the sales department and stockroom to the general office and works at Elizabethport, N. J., in the interest of greater efficiency and economy and better service to customers.

The American Chain Link Fence Co., 4 Fuller Place, Boston, has opened a branch office and show room at 116 West Exchange Street, Providence, R. I.

The Bethlehem Steel Co. has moved its office at Houston, Tex., from 911 Keystone Building to 1824 Post-Dispatch Building. Howard E. Lee is manager of the office.

Taylor-Fichter Steel Construction Co., Inc., has moved its office to the twenty-first floor, 570 Seventh Avenue, New York.

The George Eastman Co. and the Blue Diamond Co., both reinforcing bar dealers, Los Angeles, were consolidated under the name of the Blue Diamond Co., effective May 1.

George E. Dix and Leroy R. Knapp, representing the Galland-Henning Mfg. Co., Milwaukee, the Mott Sand Blast Mfg. Co., Chicago, Sheet Piling, Inc., New York, and Ikeda & Co., Japan, have removed from 7 Dey Street to larger offices at 17 John Street, New York.

Hickman, Williams & Co., Inc., dealers in pig iron and scrap, have moved their New York office from 1548 to 1441 Equitable Building.

Annual report for 1925 of the American Brown Boveri Electric Corporation, New York, shows net profit from operations amounting to \$1,254,290. After adjustments of other income the net income, after depreciation and interest but before taxes, was \$1,708,690. The balance sheet shows total assets of \$36,788,399. Of this amount current assets accounted for \$12,899,873, against current liabilities of \$1,036,529. Inventories were \$5,521,567. Plant property, including ships owned, amounted to \$20,432,362.

Industrial News Notes

The Lake Erie Bolt & Nut Co., Cleveland, has purchased the plant that it has been operating for several years under a lease from the Lake Erie Iron Co. Included in this lease was an option to purchase the plant at the end of 1926. The selling price was \$800,000, of which \$200,000 was in cash. The seller will take a 20-year, 6 per cent mortgage for \$600,000. At the annual meeting, Hugh L. McNichol of East Liverpool, Ohio, was elected a director in place of Whitney Warner, who resigned. No change is expected in the officers. Norris J. Clarke is president and general manager. The company reports net earnings for 1925 of \$132,644, or \$2.21 a share on 60,000 shares of common stock. Sales for the first quarter of this year exceeded those of the corresponding period of 1925 by 51 per cent, and net profits for the first quarter this year were \$66,006, as compared with \$21,723 for the first quarter of last year.

Hall-Will, Inc., Erie, Pa., has been incorporated by Lesley Hall, president, and C. F. Williams, vice-president, for the purpose of manufacturing pipe-threading machinery. Portable pipe threaders, with capacity from 1/4 in. to 2 in., are to be on the market shortly, with larger machines following. Mr. Hall has been in this line of work for 24 years, starting with his father in Canada under the name of John H. Hall & Sons. He designed and built special machines for the Tube Mills of Canada and for the British Munitions Board. Mr. Williams is a son of F. C. Williams, founder of the Williams Tool Corporation, Erie. He was general superintendent of that plant for many years, resigning in 1921 to go with the Erie Steam Shovel Co.

The Olympia Pipe & Machine Works has been organized at Seattle with a capital of \$25,000 by P. J. Swanson, E. G. Begin and R. D. Robinson.

The Longview Foundry Co. has been organized at Longview, Wash., by F. R. Faller, who proposes to build a plant for the manufacture of iron and steel castings. Mr. Faller formerly was connected with the Everett Steel Co., Everett, Wash.

The Stein-Brill Corporation, 25 Church Street, New York, has been formed to buy and sell complete plants and individual pieces of equipment in the following lines of industry: Chemical, soap, oil mill, oil refineries, sugar, paper mill, rubber, paint, industrial alcohol, fertilizer, packing house, laundry, textile, dyeing, contractors and allied lines. Officers are: Louis I. Brill, president; Jerome D. Stein, secretary-treasurer, both engineers with years of practical experience.

A. M. Castle & Co. of Illinois, 1300 North Branch Street, Chicago, have purchased the business of A. M. Castle & Co. of Washington, Seattle, a Delaware corporation, increasing the capital stock from \$1,750,000 to \$3,000,000. A. M. Castle & Co. now have warehouses in Chicago, Los Angeles, Seattle and San Francisco.

James W. Fuller, Jr., formerly one of the heads of the Fuller-Lehigh Co., manufacturer of fuel and other pulverizing and pumping machinery, recently purchased by the Babcock & Wilcox Co., 85 Liberty Street, New York, boiler manufacturer, has organized the Fuller Co. It will specialize in the manufacture of patented conveying systems, previously produced by the Fuller-Lehigh Co., but not included in the sale of that organization.

First Quarter Earnings of Republic Co.

Net gain from operations for the first quarter of 1926 is reported by the Republic Iron & Steel Co. to have been \$2,172,091. Net profit after provision for depreciation and depletion was \$1,618,572. After interest on bonds and notes there remained, applicable to dividends, \$1,321,846. Preferred dividend of 1 1/2 per cent was paid, leaving a surplus for the quarter of \$884,346. Unfilled orders on hand March 31 amounted to 151,827 tons, compared with 223,973 tons at the end of December.

Gross operating revenue of the Virginia Iron Coal & Coke Co., for the first quarter amounted to \$920,607. Operating expenses reduced this to a net operating revenue of \$51,930. Adjustment for revenue from other sources and deducting bond interest, etc., leaves a net loss for the quarter of \$10,017.

Youngstown's First Quarter

Net earnings from operations of the Youngstown Sheet & Tube Co., in the first quarter of 1926, are reported at \$7,448,416. After adjustment of other income and charges the net income was \$7,768,279. Depreciation and depletion reduced this amount to net earnings of \$5,459,012. Interest and federal income tax provision left \$3,804,837 net profits applicable for dividends. Payments of 1 1/2 per cent on preferred and \$1 per share on common stock left a surplus balance for the quarter of \$2,568,012.

Machinery Markets and News of the Works

LARGE LIST FOR SUBWAY

Brooklyn-Manhattan Transit Co. Inquires for About 50 Machines

General Buying Shows Some Falling Off from Earlier Months of Year but Is Fairly Satisfactory

WHILE machine tool buying has fallen off somewhat from the volume of the first quarter of the year, there has been no sudden slump and there is still a fair amount of business. Machine tool builders are catching up on deliveries.

The Brooklyn-Manhattan Transit Co., which is equipping a new repair shop at Coney Island, New York, has issued an inquiry for about 50 items of equipment. Purchases against a previous list were made a number of weeks ago.

New York

NEW YORK, May 4.

THE Brooklyn-Manhattan Transit Co. has issued a new list comprising about 50 items of equipment for new repair shops at Coney Island. Some purchases against a previous list were made several weeks ago. The General Electric Co. is again buying equipment for its Philadelphia switchboard plant, its purchases including a number of large presses and other machines. The volume of buying, while not up to the record set by the earlier months of the year, continues fairly good. Inquiries are fewer in number. The demand for good used tools is steady; one company last week sold two engine lathes, two 20-in and one 50-in. drilling machines and a 16-in shaper. Purchases of new machines included a motor-driven floor grinder to a railroad; three hand milling machines to a lock manufacturer in Connecticut; two 13-in. geared-head lathes to a Detroit automobile manufacturer; a 10-in tool makers' lathe to a New Britain, Conn., company; two 13-in. geared-head lathes to a Springfield, Mass., company; a profiling machine to a Trenton, N. J., rubber company, and a deep-hole drilling machine to a Detroit motor company. Turret lathes are in good demand, a Cleveland company having sold 10 in this territory within the past week.

Orders recently received by the E. W. Bliss Co., Brooklyn, N. Y., for cold rolling mill equipment include six cold rolling mills to roll up to 36 in. wide for the Columbia Steel Co., Pittsburgh, and five cold rolling mills of the cluster type for the American Steel & Wire Co., Cleveland.

Bids have been asked by the American Radiator Co., 40 West Fortieth Street, New York, for a new two-story metallurgical laboratory, 50 x 100 ft., on the Bronx River Road, Yonkers, N. Y., to cost about \$100,000 with equipment. H. Lansing Quick, South Broadway, Yonkers, is architect.

The Theurer Wagon Works, Inc., 601 West Fifty-sixth Street, New York, has leased a floor in the building at 614-18 West Fifty-sixth Street for expansion.

The Department of Water Supply, Gas & Electricity, Municipal Building, New York, has taken out a permit for the erection of a two-story shop, equipment storage and distributing building, 70 x 100 ft., on Jerome Avenue, near the Moshulu Parkway South, to cost \$100,000. A service and repair department for automobiles will be provided. William N. Brush is architect for the department.

Carl Oelhof, Leonia Avenue, New York, is having plans prepared by Horace S. Luckman, 135 Broadway, architect, for extensions in his one-story machine shop at 177 Christopher Street.

The Morse Dry Dock & Repair Co., 17 Battery Place,

The General Electric Co. made within the week further purchases, including several large presses, for its Philadelphia switchboard plant.

One of the most active lines is turret lathes. The business of a Cleveland manufacturer in April almost equalled that of March. Last week it sold 10 machines in the New York territory, a particularly good record.

Automobile manufacturers are not buying heavily, but among the companies which last week bought in small lots were the Nash, Packard and Oakland.

Railroad demand is singularly light. A few inquiries are current at Chicago, mostly from the Santa Fe and Rock Island. The Chicago, St. Paul, Minneapolis & Omaha bought a few machines. In general railroad buying and inquiry are not up to expectations.

About 450 tools are to be auctioned May 11, 12 and 13 at the Connersville, Ind., plant of the Ansted Engineering Co. Demand for used tools is steady.

New York, has acquired the former ship repair plant of the Alderton Dock Yards, Ltd., with adjoining property at the foot of Seventeenth, Eighteenth and Nineteenth Streets, fronting on Gowanus Bay, Brooklyn. The new owner will make extensions and will develop the plant as its upper yard. The present main repair plant, foot of Fifty-sixth Street, Brooklyn, will be continued in service.

The Troy Community Garage, Troy, N. Y., care of F. M. Baucus, Troy Automobile Club, has plans under way for a four-story automobile service, garage and repair building, 75 x 100 ft., on River Street, to cost approximately \$325,000 with equipment. G. Saxton Thompson, 257 Broadway, Troy, is architect.

The State Department of Prisons, Albany, N. Y., has secured an appropriation of \$750,000 for the purchase of land and construction of a power plant at the State hospital for the criminal insane, Matteawan, for which plans will soon be prepared by the State Department of Architecture.

The Kimberly-Clark Co., Neenah, Wis., manufacturer of paper, and the New York Times, Times Square, New York, have organized the Spruce Falls Power & Paper Co., Ltd., to take over the properties of the Spruce Falls Co., Ltd., near Kapuskasing, Ont., heretofore controlled by the Kimberly-Clark interests. Plans are under way for a newsprint mill to be equipped for a daily output of 500 tons per day, the expansion of an existing sulphite mill for about 120 tons per day and a hydroelectric power development. The latter will be carried out at Smoky Falls and Devil Rapids, about 40 miles from the mill site, with the construction of a transmission line to the plant. The New York Times will secure its supply of newsprint from the new company, estimated at one-third of the production noted. The complete project is estimated to cost \$25,000,000, and will require about 24 to 30 months for consummation. George F. Hardy, 305 Broadway, New York, engineer, has been engaged to prepare plans. J. H. Black will be general manager of the new company.

F. Savignano, 6005 Fourteenth Avenue, Brooklyn, architect, is completing plans for a two-story automobile service, repair and garage building, 100 x 257 ft., at 8124 Eighteenth Avenue, estimated to cost \$100,000, with equipment.

The Marko Storage Battery Co., 1402 Atlantic Avenue, Brooklyn, has acquired property at Randolph Street and Varick Avenue, Brooklyn, totaling 40,165 sq. ft., as site for a new plant for which work will soon begin. It is reported to cost about \$75,000 with equipment.

Howell, Field & Goddard, Inc., Review Avenue, Long Island City, manufacturer of fireproof doors, sash, etc., has leased waterfront property adjoining its plant, totaling 75,000 sq. ft., for expansion.

The Board of Education, Walden, N. Y., is considering the installation of manual training equipment in its proposed two-story high and grade school to cost \$200,000, for which bids will soon be asked on a general contract. Gerard Betz, 286 Wall Street, Kingston, N. Y., is architect.

The State Hospital Commission, Albany, N. Y., has secured a fund of \$200,000 for the construction of a power

The Crane Market

THERE are a large number of inquiries for electric overhead cranes before the market, but buyers are slow in making purchases. The Foundation Co., 120 Liberty Street, New York, has been receiving bids on a list of about eight overhead cranes for the shops being erected at Decatur, Ill., for the Wabash Railway Co. Thus far three of these cranes have been closed. The Phoenix Utility Co., New York, which has closed on one crane this week, has several still to be purchased. The Tannin Corporation, New York, is expected to issue its inquiry for three 10-ton cranes in a week or two.

Among recent purchases are:

James McKinney & Son, Albany, N. Y., a 10-ton, 30-ft. span, 3-motor, floor controlled overhead crane from the Northern Engineering Works.

Delaware, Lackawanna & Western Railroad, a 25-ton, 4-motor gantry crane for Harlem transfer in New York, from the Milwaukee Electric Crane & Mfg. Co.

Certain-Teed Products Corporation, 100 East Forty-second Street, New York, a 1-ton, 33-ft. span, 3-motor overhead crane for Texas from Alfred Box & Co.

Foundation Co., 120 Liberty Street, New York, a 200 ton, 80-ft. span, and two 15-ton, 77-ft. 7-in. span overhead cranes for the Wabash Railway Co. shops at Decatur, Ill., purchased from an unnamed builder.

Texas Power & Light Co., Dallas, Tex., a 20-ton hand power crane for handling transformers, from the Chisholm-Moore Mfg. Co.

Dreses Machine Tool Co., Cincinnati, a 10-ton electric traveling crane from the Shaw Electric Crane Co.

George Brown & Co., cut stone, Newark, N. J., a 25-ton overhead traveling crane from the Shaw Electric Crane Co.

Otis Elevator Co., Harrison, N. J., a 3-ton and 5-ton electric traveling cranes from the Shaw Electric Crane Co.

Babcock, Wilcox & Goldie, McCulloch, Ltd., Gault, Ont., a 10-ton, 4-wheel, used Brownhoist locomotive crane with 1½ cu. yd. bucket from Philip T. King, New York.

Gordon Crushed Stone Co., Ltd., Toronto, Ont., a used type B Erie locomotive crane and shovel, from A. R. Gelinas, Montreal.

Hamilton Metal Smelting Works, Hamilton, Ont., a 10-ton used American locomotive crane from A. R. Gelinas, Montreal.

M. Reichman & Sons, Inc., Newark, N. J., a 20-ton locomotive crane from the Browning Crane Co.

Hudson Valley Coke & Products Co., Troy, N. Y., a 20-ton locomotive crane from the Browning Crane Co.

J. G. White Engineering Co., 43 Exchange Place, New York, a 25-ton, 37-ft. 11½-in. span hand power crane for Nortonville, Ky., from Alfred Box & Co.

Reading Co., Philadelphia, a standard ditcher, from the American Hoist & Derrick Co.

Jones & Laughlin Steel Corporation, two 5-ton, 96-ft. 6-in. span, one 5-ton, 46-ft. 8-in. span, three 5-ton, 121-ft. 6-in. span and one 15-ton, 96-ft. 6-in. span overhead cranes for extension to pipe plant at Woodlawn, Pa., from the Cleveland Crane & Engineering Co.

Chicago, Burlington & Quincy, a 5-ton, 55-ft. span bucket handling gantry crane for Hannibal, Mo., from the Whiting Corporation.

plant at the State hospital for the treatment of pulmonary tuberculosis at Ray Brook, for which plans will soon be drawn.

Jardine, Hill & Murdock, 347 Madison Avenue, New York, architects, have completed plans for a six-story automobile service, repair and garage building, 50 x 99 ft., at 250-52 West Twenty-fifth Street, to cost about \$80,000 with equipment.

Fire, April 30, destroyed a portion of the plant of Fisher Brothers, 3-11 East 137th Street, New York, manufacturers of cabinets, store fixtures, etc., with loss estimated at \$50,000 including equipment. Plans for rebuilding are under consideration.

J. B. Slattery & Brother, 118 Sanford Street, Brooklyn, manufacturers of gas stoves and appliances, have acquired the entire building at 179 Wallabout Street, and will establish their plant at this location, expanding the former capacity. The Sanford Street factory has recently been acquired by the Manhattan Wood Heel Co., 600 Kent Avenue, Brooklyn.

The De Mattia Foundry & Machine Co., 6 Monroe Street, Clifton, N. J., has awarded a general contract to the J. J. O'Leary Co., 125 Prospect Street, Passaic, N. J., for a two-story machine shop, 100 x 240 ft., to cost \$85,000 with equipment.

P. Kozans, Jersey City, N. J., care of G. A. Flagg, 665 Newark Avenue, Jersey City, architect and engineer, is having plans drawn for a one-story machine shop on St. Paul's Avenue, to cost \$45,000 with equipment.

The Hardester Corporation, Newark, care of Halsey J. McGuinness, 77 East Park Street, recently organized, has leased property on Whittier Street, Linden, N. J., with option to purchase, as a site for a new plant for the manufacture of paint dryers, gum dryers, and kindred specialties. Washington M. Cross is president.

The Stove Repair Corporation, 184 Mulberry Street, Newark, has acquired through a subsidiary, the Mars Realty Corporation, property at 9-11 Hamilton Street and is reported to be planning the erection of a new plant on the site.

John C. Nordt, Inc., Camp and Orchard Streets, Newark, manufacturing jeweler, has leased space in the building at 98-100 Murray Street and 45-55 Austin Street, and will remodel for a new plant. The present works will be removed to the new location and the capacity increased. Paul W. and Carl H. Nordt head the company.

C. Mundt & Sons, 53 Fairmount Avenue, Jersey City, N. J., manufacturers of perforated metals, have awarded a general contract to H. A. Crane, 2836 Fairmount Avenue, for their proposed one-story machine shop addition, 85 x 130 ft., to cost about \$55,000 with equipment. John T. Rowland, 101 Slip Avenue, is architect.

The Chipman Chemical Engineering Co., 136 Liberty Street, New York, with plant at Bound Brook, N. J., manu-

facturer of fertilizers, etc., has leased with option to purchase property at 6225 West Sixty-sixth Place, Chicago, totaling 27,000 sq. ft., and plans the early erection of a new branch plant.

The Board of Education, Montclair, N. J., Fred P. Reagle, secretary, is asking bids until May 21 for manual training shop equipment for local schools; also, for mechanical drawing and manual arts apparatus, as per lists on file.

The Board of Education, City Hall, Newark, N. J., is taking bids until May 12 for equipment for local schools, including iron and steel, hardware, electrical supplies, steam-fitting supplies, drawing tables, etc. R. D. Argue is secretary.

The Columbian Art Metal Works, 317 Eleventh Street, West New York, N. J., recently incorporated, has engaged in the manufacture of ornamental and interior decorative iron works. The owners of the business are P. Blumenthal and J. Clocher.

Buffalo

BUFFALO, May 3.

THE Morrison & Risman Co., 1437 Bailey Avenue, Buffalo, iron and steel products, has leased property at 6230 West Sixty-sixth Place, Chicago, totaling about 68,000 sq. ft. of ground space, as a site for a new branch plant. It is expected to begin work soon.

The Hecker-Jones-Jewell Milling Co., 503 Seneca Street, Buffalo, has plans under way for a new flour mill, to cost in excess of \$400,000 with machinery. The A. E. Baxter Engineering Co., Ellicott Square Building, is engineer. Headquarters are at 40 Corlear Street, New York.

The Morse Chain Co., Ithaca, N. Y., manufacturer of silent transmission chains and systems, has awarded a general contract to Alexander, Shumway & Utz, Inc., 80 South Fitzhugh Street, Rochester, N. Y., for a five-story addition, 80 x 300 ft., to cost \$125,000. T. L. Morse is president.

The Pierce, Butler & Pierce Mfg. Corporation, Syracuse, N. Y., manufacturer of heaters, heating equipment, etc., has plans for a two-story factory branch and distributing plant, 90 x 200 ft., at Richmond Hill, L. I., to cost about \$90,000 with equipment. Headquarters are at 41 East Forty-second Street, New York.

The Board of Trustees, Dexter, N. Y., is taking bids until May 20 for a steel standpipe with capacity of 300,000 gal. in connection with extensions in the municipal water system. William T. Field, Watertown, N. Y., is consulting engineer.

Bowie-Clark, Inc., Binghamton, N. Y., has inquiries out for an air compressor, Ingersoll-Rand type.

The Purecold Products of America, Inc., 1440 Broadway, New York, manufacturer of electrically-operated refrigerating equipment, capitalized at \$2,500,000, is arranging the early construction of a new plant at Endicott, N. Y., where property was recently acquired from the Endicott Land Co.

New England

Boston, May 3.

LOCAL machinery houses report a falling off in large tool sales and new inquiries, but the majority, however, booked as much business in April as in March, which was one of the best months in several years. Business is by no means at a standstill, but is confined mostly to small equipment and small tools. A new small engine lathe, a used screw machine, an 8-in. grinder and two new bench drills, taken by a Cambridge shop, were among sales of the past week. Small tool business is active and deliveries on certain classes of machines are becoming quite extended.

Joseph Beale & Co., Atlantic Avenue, Boston, was low bidder on metal working equipment required for an East Boston school. The city of Westfield, Mass., has closed bids on shop equipment for a new trade school, but has not made an award. Several other New England cities, it is reported, will shortly be in the market for equipment. Local machinery houses state there is no export demand, but scattering sales are being made on Pacific Coast plants. During the past week a long bed used lathe, was sold to a San Francisco company.

The Norfolk Iron Works, Norfolk Downs, Quincy, Mass., has awarded contract for an addition. Some equipment is wanted.

Bids closed May 3 for a proposed two-story, 55 x 302 ft., plant and office for the Westinghouse Electric & Mfg. Co., West Springfield, Mass. Bernard H. Prack, 119 Federal Street, Pittsburgh, is the engineer.

The E. Ingraham Co., Bristol, Conn., clocks, has awarded contracts for extensions to cost approximately \$200,000, including a one-story buffer and plating department addition, permitting an increase of about 65 per cent in production.

The Walker-Hoops Mfg. Co., Middletown, Conn., automobile accessories, has purchased the property formerly used by the P. E. Palmer Mfg. Co. as a spinning plant. It is four stories, 50 x 140 ft., containing approximately 27,000 sq. ft. The new owners will occupy about June 1.

Miller & Levi, 46 Cornhill Street, Boston, architects, have plans for a one-story automobile service, repair and garage building, 150 x 375 ft., at Everett, Mass., to cost \$150,000 with equipment.

The Baker Mfg. Co., 105 Commercial Street, Lynn, Mass., recently incorporated, is manufacturing a complete line of underground garbage receptacles, ash barrel trucks with large wheels for wheeling ash barrels up and down steps, and other related products.

The New Britain Spring Co., 706 West Main Street, New Britain, Conn., manufacturer of steel springs, etc., has awarded a general contract to A. Matson, Plainville, Conn., for a one-story addition, 27 x 65 ft.

The Consolidated Cement Corporation, care of the Cowham Engineering Co., 111 West Monroe Street, Chicago, recently organized under the management of the last noted company, is reported to have plans under way for a new cement mill in the vicinity of Rockland, Me., with an average output of 1,500,000 bbl. per year. The plant will cost in excess of \$2,000,000. The company has recently taken over the Peninsula Portland Cement Co., Cement City, Mich.; Fredonia Portland Cement Co., Fredonia, Kan., and the Great Western Portland Cement Co., Mildred, Kan. John L. Senior is president.

The Boston Elevated Railway Co., Park Square Building, Boston, is completing plans for the early erection of a two-story machine repair shop, automobile service and garage building, 45 x 150 ft., at Somerville, to cost \$80,000 with equipment. A. J. Blackburn is company architect.

The Draper Corporation, Hopedale, Mass., manufacturer of textile machinery, is completing the construction of a branch plant at Campton, near Manchester, N. H., for the manufacture of bobbins, etc., where property was recently acquired. Facilities will be provided for employment of close to 800 operatives.

The New Home Sewing Machine Co., Orange, Mass., has leased about 10,000 sq. ft. of manufacturing space in a building at 5300 West Sixty-sixth Place, Chicago, for a new factory branch. Operations will begin soon.

Joseph T. Ryerson & Son, Inc., Chicago, iron and steel products, has concluded arrangements for the purchase of the reinforcing steel bar division of the Penn Metal Co., 65 Franklin Street, Boston, with plant at North Cambridge, and will consolidate with its business.

The Chicopee Electric Light Co., Chicopee, Mass., is planning the early construction of a two-story building, 57 x 68 ft., with meter and meter repair departments, equipment

storage, garage and repair facilities for company trucks and cars, and other departments, estimated to cost \$75,000.

Fire, April 29, destroyed a portion of the plant of Pierce & Chesworth, Inc., Gardner, Mass., manufacturer of wood-working machinery and parts, with loss reported at \$20,000. It is planned to rebuild.

The Dover Stamping & Mfg. Co., Putnam Avenue, Cambridge, Mass., manufacturer of metal stampings, etc., has awarded a general contract to the William Coulson Co., Cambridge, for extensions and improvements to cost about \$12,000.

The Mystic Iron Works, Inc., 1 Federal Street, Boston, has awarded a general contract to D. E. McIntire, Inc., 74 Broad Street, for an addition to its plant at Everett, Mass., to cost approximately \$45,000.

The Lowell Electric Light Corporation, Lowell, Mass., has applied for permission to dispose of an additional stock issue of \$815,800, the majority of the proceeds to be used for extensions and improvements.

Chicago

Chicago, May 3.

MACHINE sales in this district for the month of April were slightly smaller than for March, but were well ahead of bookings for April, 1925. Prospective business is in good volume, but consists almost wholly of a large number of inquiries for individual machines or small lots of smaller-size tools. Deliveries are slightly improved, and no price changes are noted. The Chicago, St. Paul, Minneapolis & Omaha has bought a No. 5 Barnes 26-in. belt-driven upright drill, a No. 2 Barnes 25-in. motor-driven upright drill and a No. 4 Barnes 42-in. motor-driven upright drill. An electric motor manufacturer in Indiana has placed two lathes, and a can company in Chicago has bought a lathe. The Nash Motors Co. has closed on several tools for its Milwaukee plant and the Ajax unit at Racine, Wis.

The Santa Fe is inquiring for a Newton, or similar, cold saw cutting-off machine, 32-in. in diameter, with inserted teeth. A separate proposition is asked for on a motor for this saw. The Rock Island is inquiring for a motor-driven 48 in. x 48-in. x 12-ft. planer with one side and two-rail heads for its Silvis, Ill., shop; a motor-driven 24-in. heavy-duty engine lathe and a 36-in. motor-driven upright drill for its Liberal, Kan., shop, and a motor-driven 24-in., 72-in. between centers, heavy duty, lathe for its shop at Dalhart, Tex. The Burlington is inquiring for three motor-driven dry grinders with 18-in. x 3-in. wheels.

Used tools are in fair demand and prices obtained are satisfactory to the trade. Chicago dealers expect to participate in the bidding on 450 machine tools to be auctioned May 11, 12 and 13 at the Connersville, Ind., plant of the Ansted Engineering Co.

The Mid-City Auto Body & Wagon Works, 401 North Morgan Street, Chicago, will build a one-story factory, 85 x 125 ft., to cost \$29,000. The general contractor is the Local Construction Co., 4500 Pensacola Avenue.

A. G. Kellermann, 1619 Walnut Street, Chicago, will build a two-story pattern shop, 33 x 161 ft. S. V. Ablamowicz, 1859 West Chicago Avenue, is the architect.

The Conover Co., manufacturer of electric dish-washing machines, formerly of Hoopeston, Ill., has leased 21,000 sq. ft. in a building at 5300 West Sixty-sixth Street, Chicago.

The D. O. James Mfg. Co., 1124 West Monroe Street, manufacturer of farm equipment, will build a three-story factory, 80 x 120 ft. to cost \$50,000. C. Hauber, 25 East Jackson Boulevard, is the architect.

The R. C. Wieboldt Co., 1534 West Van Buren Street, Chicago, general contractor, has purchased property between Lincoln and Wood Streets, from Blue Island Avenue to the Burlington tracks, and will erect a repair shop and machinery storage plant to cost \$350,000.

The Burr Foundry, 714 Champaign Street, Champaign, Ill., has been purchased by E. B. Rothgeb and D. C. Dobbins for \$27,200. The sale included the buildings, real estate and machinery, with the exception of dynamometer drawings and equipment which were sold some time ago for \$26,000 by private sale.

The Peoria Auto Body Co., Peoria, Ill., has plans under way for a two-story and basement works at Second and

Munson Streets, to cost \$62,000 with equipment. John Fried is general manager.

Johns-Manville, Inc., Waukegan, Ill., manufacturer, has tentative plans for rebuilding the portion of its local plant destroyed by fire April 28, with loss reported at \$300,000 including equipment. Headquarters are at Madison Avenue and Forty-first Street, New York.

Fire, April 21, destroyed a portion of the two grain elevators of the Cleveland Grain & Milling Co., Beech Grove, Ill., with loss reported at \$200,000, including equipment. Plans for rebuilding are under consideration.

The New Monarch Machine Co., 406 Southwest Ninth Street, Des Moines, Iowa, has awarded a general contract to J. E. Tusant & Sons, 330 Southwest Third Street, for a one-story addition to cost about \$18,000.

The Board of Education, Eureka, Ill., is considering the installation of manual training equipment in its proposed three-story high school estimated to cost \$150,000, for which bids will be asked soon on a general contract. Royer, Dancy & Smith, Flat Iron Building, Urbana, Ill., are architects.

The Illinois Central Railroad Co., 135 East Eleventh Place, Chicago, has awarded a general contract to W. J. Zitterell, Webster City, Iowa, for its proposed one-story locomotive repair shop at Burnside, Ill., 165 x 340 ft., estimated to cost \$250,000 with equipment. A. J. Blais is chief engineer.

The E. Hansen Machine Co., 1901 Wilson Avenue, Chicago, has awarded contract to R. Lundberg, 5538 Greenwood Avenue, for a new two-story plant, 75 x 85 ft. J. A. Lindstrom, 1612 Milwaukee Avenue, is architect.

The Board of County Supervisors, Maquoketa, Ill., expects to ask bids soon for a new pumping plant in the Greene Island district for a proposed irrigation project. The entire enterprise is estimated to cost \$80,000. The Central States Engineering Co., Laurel Building, Muscatine, Iowa, is engineer.

The Indiana & Illinois Coal Corporation, Nokomis, Ill., is considering rebuilding the tippie at its coal properties, destroyed by fire April 25.

The Elgin National Watch Co., Elgin, Ill., is planning to ask bids early in June for the erection of its proposed four-story and basement factory addition, 130 x 500 ft., to cost \$750,000 with equipment. G. E. Morris, Sherwin Building, is architect. DeForest Hurlburt is president.

The Central States Portland Cement Co., Chicago, care of the Cowham Engineering Co., 111 West Monroe Street, engineer, has preliminary plans under way for a new works at La Salle, Ill., estimated to cost \$1,500,000 with machinery. Construction is expected to begin early in the fall.

Pittsburgh

PITTSBURGH, May 3.

MACHINE tool business is only fair in this district. April, with most of the sellers, was below the average of the first three months of the year in point of sales, but with one or two it was the best month. New inquiries, however, are fewer than recently. The Jones & Laughlin Steel Corporation has bought two Davis rotomatic pipe threading machines.

Fire, April 29, at the Carnegie, Pa., plant of the McClintic-Marshall Co., Oliver Building, Pittsburgh, damaged the tool room and the machine shop. Some equipment will have to be replaced.

Bids are being asked by George W. Gerwig, secretary Board of Public Instruction, Fulton Building, Pittsburgh, until May 13, for an addition to the Samuel P. Langley high school, Chartiers Avenue, including fans and electric motors, boilers, temperature regulating equipment and other apparatus.

The Manchester Auto & Machine Co., 1216 Liverpool Street, Pittsburgh, has taken out a permit for a one-story addition.

The City Council, Grove City, Pa., is completing plans for a one-story addition to the municipal electric light plant, 30 x 40 ft., and will install additional equipment.

The Appalachian Electric Power Co., Bluefield, W. Va., has been organized by officials of the American Gas & Electric Co., 30 Church Street, New York, to take over and consolidate the Appalachian Power Co., Appalachian Power & Light Co., Consolidated Power & Light Co., West Virginia Water & Electric Co., and the Kentucky & West Virginia Power Co. The new organization is disposing of a bond issue of \$35,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. R. E. Breed is chairman of the board.

The Guyan Machine Shops, Logan, W. Va., machinery dealers, have been making inquiries for electric hoists, 1½ and 2-ton capacities; also for chain hoists of ½ to 3-ton capacities.

The Railway & Industrial Engineering Co., South Greensburg, Pa., manufacturer of electric railroad equipment, arresters, switches, etc., has purchased the plant and property of the Penn Aluminum Co., on adjoining site, and will remodel for an addition.

The Gulf Refining Co., Frick Annex, Pittsburgh, has plans for a steam power house at its properties at Mathilda and Gross Streets.

The West Penn Power Co., West Penn Building, Pittsburgh, will soon begin the construction of a power dam for a hydroelectric power development on the Blackwater River, near Davis, W. Va.

Philadelphia

PHILADELPHIA, May 3.

BIDS have been asked by the John M. Driver Co., 1644 North Fifty-fifth Street, Philadelphia, manufacturer of paper products, for a new one and two-story plant, 60 x 270 ft., with one-story power house, reported to cost \$90,000 with equipment. Stetler & Deysher, 1015 Chestnut Street, are architects.

The Board of Directors, Sesqui-Centennial International Exposition, E. L. Austin, controller, city of Philadelphia, has plans for two pumping plants for a fire-protection system on the exposition grounds, including an electrically-operated centrifugal pumping station with capacity of 3000 gal. per min., and gasoline engine-driven auxiliary pumping station of 2000 gal. per min. rating, with complete auxiliary equipment. Other pumping machinery will also be installed on the grounds. The complete system is estimated to cost close to \$500,000.

The American Container Co., Swanson and Shunk Streets, Philadelphia, manufacturer of corrugated board and other containers, is considering plans for a one-story addition, estimated to cost \$50,000 with equipment.

The Philadelphia Rapid Transit Co., Eighth and Dauphin Streets, Philadelphia, has plans for a one-story automobile service, repair and garage building, 150 x 340 ft., for motor buses, to cost \$100,000 with equipment.

The Roman Catholic High School, 1723 Race Street, Philadelphia, Cardinal D. J. Dougherty, is said to be planning the installation of a manual training department in its proposed three-story and basement high school at Sixteenth Street and Allegheny Avenue, estimated to cost \$1,000,000. Competitive sketches are being received preliminary to the selection of an architect.

The Ajax Electrothermic Corporation, 636 East State Street, Trenton, N. J., manufacturer of electric furnaces, alloys, etc., has work under way on its new plant at Fernwood, N. J., comprising a one-story unit, 60 x 203 ft., with two-story office building, and expects to have the plant ready for operation early in the summer. It will cost about \$150,000. The company is a subsidiary of the Ajax Metal Co., 45 Richmond Street, Philadelphia.

Officials of the Eureka Flint & Spar Co., Lewis Street, Trenton, N. J., have formed a new company of the same name under Delaware laws, with capital of \$10,000,000 to take over and expand the present organization. The company operates feldspar properties and grinding mills.

The Atlantic City Electric Co., Atlantic City, N. J., will issue bonds for \$976,000, and preferred stock in amount of \$325,800, a portion of the proceeds to be used for extensions and improvements.

Paul A. Voleker, city manager, Cape May, N. J., is asking bids until May 11 for electrical and mechanical equipment for the municipal waterworks, including one 36-kw. electric generator and auxiliary equipment; one 180-hp. and one 120-hp. Diesel engines, direct-connected to generators; motor-driven centrifugal pumps, vacuum pumps, switchboard apparatus and accessory equipment. Remington & Vosbury, 509 Cooper Street, Camden, N. J., are engineers.

The Bridge Plaza Parking Garage, Inc., Camden, N. J., recently organized, has plans for a five-story service, repair and garage building at the Camden entrance to the Delaware River bridge, reported to cost \$175,000 with equipment.

The MacAndrews & Forbes Co., Third and Jefferson Streets, Camden, N. J., manufacturer of wallboard products, etc., has awarded a general contract to Barclay White & Co., 1713 Sansom Street, Philadelphia, for a three-story and basement addition, 58 x 378 ft., to cost \$160,000 with equipment.

The Motor Equipment Co., 2216 Chestnut Street, Philadelphia, manufacturer of automobile parts and supplies, is reported to be considering the erection of a new plant at Riverton, N. J., to cost about \$50,000 with machinery.

The Mifflin Township School Board, Columbia County, Bloomsburg, Pa., has voted to convert the local high school into a vocational school. Plans will be prepared soon with list of equipment to be installed.

The new company being organized by J. A. Sheffer, Lancaster, Pa., and associates, will be known as the Lancaster Metal Craft Corporation, chartered under Delaware laws with capital of \$300,000. It will take over the assets of the Metal Craft Corporation, recently secured at a receiver's sale, and will operate a plant for the manufacture of metal stampings and kindred metal goods. Mr. Sheffer is president and general manager, and H. L. McClure, secretary and treasurer.

The Battery & Ignition Co., 1103 Hamilton Street, Allentown, Pa., has acquired property at 43 North Eleventh Street for \$25,000 and will remodel the existing building for a new plant. The present works will be removed to this site and additional equipment provided. Ezra E. Fetzner is head.

Officials of the Charles Schutte Body Co., Lancaster, Pa., manufacturer of automobile bodies, have formed, under Delaware laws, the Schutte Blue Ribbon Body Corporation, capitalized at \$5,000,000, to take over and expand the present organization. The company is reported to be considering the construction of a new branch plant at Haines City, Fla., for the manufacture of automobile buses.

South Atlantic States

BALTIMORE, May 3.

CONTRACT has been let by the Black & Decker Mfg. Co., Towson, Baltimore, manufacturer of electric drills, etc., to William H. Sands, Pennsylvania Avenue, Towson, for a one-story machine shop, 100 x 200 ft., to cost about \$75,000 including equipment. George N. Mackenzie, 115 Guilford Avenue, is architect.

The Board of Water Commissioners, Hagerstown, Md., William P. Lane, president, is asking bids until May 18 for a pumping plant in connection with proposed extensions and improvements in the municipal waterworks.

The Virginia Bridge & Iron Co., Madison Avenue, Roanoke, Va., will soon begin the construction of a two-story addition to be equipped as a templet shop. Improvements will be made in present buildings. The work is estimated to cost \$50,000. Smithey & Tardy, 112 Kirk Avenue, West, are architects.

The Board of District Commissioners, District Building, District of Columbia, Washington, is asking bids until May 14 for one tire forcing press, 300 tons capacity.

The Common Council, Hawkinsville, Ga., is considering plans for rebuilding the municipal electric light and power house and waterworks station destroyed by fire April 26.

The Club Aluminum Co., 105 West Twentieth Street, New York, manufacturer of cast aluminum kitchen ware, is making inquiries from its Baltimore office, 3500 East Biddle Street, for certain equipment for its proposed local plant in the Gibbs Industrial Building, including electric drill; engine lathe, Monarch type; triplex hoist, 1/2-ton capacity; polishing and grinding equipment; blow pipe equipment, etc. R. H. Clutter is purchasing agent, in charge.

The Columbia Auto & Wagon Works, East Gervais Street, Columbia, S. C., is considering plans for a one-story addition to cost about \$30,000 with equipment. F. E. Benoit is head.

The Victor Sparkler Co., Elkton, Md., manufacturer of fireworks, has concluded arrangements for a new branch plant at Chestertown, Md. An existing building will be remodeled and equipped for a working force of 75, to be increased later.

The Board of Commissioners, York, S. C., is asking bids until May 27 for extensions and improvements in the water supply and sewage systems, including one sewage pumping plant complete with machinery; one 150,000 gal. capacity steel tank on 125-ft. tower, and one 25,000-gal. capacity steel tank on 35-ft. tower. The Carolina Engineering Co., Johnston Building, Charlotte, N. C., is engineer.

The Maryland Slag Co., Pier No. 2, Pratt Street, Baltimore, has awarded a general contract to the M. A. Long Co., 10 West Chase Street, for a new slag crushing plant at Sparrows Point to cost about \$50,000. It is purposed to develop an initial daily capacity of about 2000 tons. R. A. Froehlinger is secretary.

Fire, April 29, destroyed a portion of the fertilizer plant of the American Agricultural Chemical Co., Canton, Baltimore, with loss reported at \$75,000 including equipment. Plans are under advisement for rebuilding. Headquarters are at 2 Rector Street, New York.

The Columbia Railway & Navigation Co., 1203 Pulaski Street, Columbia, S. C., is reported to be planning the construction of a hydroelectric power station on the Sanatee River, near Monck's Corner, S. C., to cost in excess of \$150,000.

The United States Engineer, Navy Building, Washington,

is asking bids until May 18 for three electric generators, automatic switching and auxiliary equipment.

Fire, April 30, destroyed a portion of the plant of the Delaware Tool Co., 3300 Market Street, Wilmington, Del., with loss reported at \$15,000 including equipment. It is planned to rebuild.

The Hackley-Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has been making inquiries for a combination wood-working machine.

Charles Reid, 220 East Concord Street, Morgantown, N. C., is desirous of getting in touch with manufacturers of equipment for sharpening carpenters' saws.

The Carolina Fireproofing Co., Sanford, N. C., manufacturer of hollow tile, etc., has arranged an expansion program to double the present capacity. Equipment will be installed to develop a production of close to 300 tons per day. A housing development for employees is under consideration.

The Hiddenite Crushed Stone Co., Inc., Hiddenite, N. C., is planning the installation of a continuous belt conveyor about 250 ft. long, with capacity for handling 100 tons of 4-in. material per hr.; also will purchase a number of all-steel quarry cars, flat bottom, side dump.

The Common Council, Martinsville, Va., is planning the installation of pumping machinery in connection with proposed extensions and improvements in the municipal waterworks. A bond issue of \$70,000 is being arranged.

J. P. Doughty, Jr., Augusta, Ga., is desirous of getting in contact with a plant in position to contract for the manufacture of special portable hoists.

Additional buildings are being erected for the Ferguson Gear Co., Gastonia, N. C., which will provide about three times the present manufacturing space.

Gulf States

BIRMINGHAM, May 3.

THE Magnolia Petroleum Co., Dallas, Tex., will make extensions and improvements in its refinery at Beaumont, Tex., to cost about \$2,500,000, including the installation of stills and other equipment.

The West Florida Power Co., Tallahassee, Fla., has secured permission for the construction of a hydroelectric power plant on the Ocklocknee River, near Bloxham, Fla., to cost about \$250,000 with transmission system.

W. M. Smith & Co., First Avenue, Birmingham, are inquiring for a vertical boring mill.

The Higginbotham-Steger Co., Main and Second Streets, Bonham, Tex., is in the market for wood-working equipment, including mortiser and boring machine, rip and cross-cut saws, variety saw electrically operated, and auxiliary tools.

J. N. Myers, Texarkana, Tex., is at the head of a project to construct an ice-manufacturing and cold storage plant. A site has been acquired. The initial works will have an output of 25 tons of ice per day, with storage facilities up to 100 tons, estimated to cost \$70,000 with machinery.

The West Coast Brick Co., 124 Central Avenue, Sarasota, Fla., has purchased 200 acres in Hillsborough County with heavy silica deposits, and will erect a new plant for the manufacture of silica brick. Equipment will be provided for an initial output of 45,000 brick. A clay-mining plant will be installed. The complete project is reported to cost close to \$100,000. The company was organized recently with a capital of \$350,000.

The City Council, Polk City, Fla., contemplates the installation of a pumping plant with two pumping units and auxiliary equipment in connection with a proposed municipal waterworks. A 100,000-gal. capacity steel water tank and tower will be purchased.

The St. Marys Wheel & Spoke Co., St. Marys, Ohio, has acquired property on Black Creek, Alabama City, Ala., and is reported to be arranging for the early construction of a new plant, to cost close to \$40,000 with equipment.

The Royal Palm Ice & Refrigerating Co., 1533 S. W. Third Street, Miami, Fla., is said to have preliminary plans under way for a new ice-manufacturing and cold storage plant on the Dixie Highway, to cost approximately \$500,000 with machinery. J. C. Pereno is president and general manager.

The Texas & Pacific Railroad Co., Dallas, Tex., is reported to be planning the construction of a new engine terminal at Gouldsboro, near McDonoughville, La., with engine house, machine shop, wheel shops, power house and other buildings, to cost close to \$800,000 with machinery. E. F. Mitchell is chief engineer.

G. P. Winham, Standard Lumber Co., Texarkana, Tex., is at the head of a project to construct a local brick-

manufacturing plant, estimated to cost \$45,000 with equipment.

J. C. Hamilton, city clerk, Port Arthur, Tex., is asking bids until May 13 for one 10,000-gal. per min. low service pumping unit, and one 2100-gal. per min. high service motor-driven pump, with auxiliaries, for the municipal waterworks. J. O. Herpin is supervising engineer for the city.

Calvin Jones, 3053 Highland Avenue, Birmingham, has plans for a one-story automobile service, repair and garage building, 190 x 200 ft., to cost \$50,000 with equipment.

The Hacker Machinery & Supply Co., Houston, Tex., has inquiries out for a 40 to 50-hp. uniflow engine, Skinner type preferred.

The City Council, Gulfport, Miss., is planning the construction of a pumping plant in connection with proposed extensions and improvements in the municipal waterworks. A fund of \$35,000 is being arranged for the work.

The Board of Trustees, University of Texas, Austin, Tex., J. W. Calhoun, comptroller, is taking bids until May 15 for equipment for a proposed power plant, including one uniflow steam engine with electric generator, three 500-hp. cross-drum boilers with mechanical stokers, coal and ash-handling machinery, boiler feed pumps, centrifugal sump pumps, vacuum pumps, feed water heaters, and accessory apparatus.

The Union Oil Mills, Inc., West Monroe, La., is considering rebuilding the portion of its plant recently destroyed by fire, with loss estimated at \$250,000 including machinery.

The Board of Education, Starkville, Miss., is considering the installation of manual training equipment in its proposed new two-story high school to cost \$100,000, for which bids will soon be asked on a general contract. Claude H. Lindsley, Lamar Life Building, Jackson, Miss., is architect.

The Murphee-Gay Lumber Co., New Smyrna, Fla., has inquiries out for a 50 to 75-kw. a.c. generator, with accessories.

Cleveland

CLEVELAND, May 3.

MACHINE tool sales in this district were very light the past week. The volume of business booked by dealers during April fell off somewhat as compared with March. Activity is confined for the most part to single machines with special tools moving better than standard. Demand for turret lathes is holding up fairly well, sales by a local manufacturer in April almost equaling those of March. A little spurt of activity has come from the automobile industry, which has been buying very little equipment for some time. The Packard Motor Car Co., Detroit, and the Oakland Motor Car Co., Pontiac, Mich., both purchased a number of machines.

Foundry equipment is moving in fair volume. Recent orders taken by the W. W. Sly Mfg. Co., Cleveland, include three large tumbling mills for Dodge Brothers, Inc., Detroit; three large tumbling mills for the Poughkeepsie Foundry & Machine Co., Poughkeepsie, N. Y.; core sand reclaiming equipment for the Saginaw Products Co., Saginaw, Mich., and a number of miscellaneous orders for tumbling mills and other equipment.

The Cleveland Wire Spring Co., 1281 East Thirty-eighth Street, Cleveland, took bids last week for a one-story addition, 90 x 120 ft., to its sheet metal plant at East Forty-ninth Street and Harvard Avenue. James W. Campbell is president. The George S. Rider Co., 612 Century Building, is the engineer.

The Oakland Sales Co., Youngstown, Harry Reed, manager, has awarded contract to Ralph Campbell, Almyra Avenue, for a two-story and basement repair garage and sales room, 82 x 290 ft.

A manual training department will be provided in a combination grade and high school to be built in Franklin Township, Darke County, Ohio. Raymond Eberwein, Arcanum, Ohio, is clerk of the Board of Education.

The McKinney Tool & Mfg. Co., Cleveland, has been incorporated, succeeding the McKinney Tool Co., 15215 Utopia Avenue. The company is planning to secure larger quarters for expansion and expects to add additional products to its present line of machine shop work.

The Concrete Steel Products Co., P. O. Box 117, Firestone Park Station, Akron, Ohio, was recently organized for the purpose of manufacturing structural steel frames. The company's entire output will be sold to a nationally known organization which will market it. Manufacturing will be begun about May 15.

Cincinnati

CINCINNATI, May 3.

MACHINE tool sales in this district for the month of April totaled approximately 70 per cent of those in March. In fact, several important builders state that new business the past month was only about one-half of that in the previous month. The decrease in buying is attributed to the influence of the break in the stock market, which made many consumers hesitate about placing orders for new equipment, and to the lack of interest shown by automobile makers and railroads.

Inquiries are encouraging and indicate that there will be at least a moderate revival of buying in May. The largest pending business is for nine lathes for shipment to South America. Otherwise, prospects are confined principally to single machines.

Shipments of machine tools were well sustained the past month, but exceeded fresh business by a considerable margin. Consequently, the number of unfilled orders May 1 was not as large as that a month ago. Despite the apparent absence of buying on an extensive scale, many local builders declare that their sales have been sufficiently large to make it impossible for them to accumulate any surplus stock. Some machine tool manufacturers state that they are regulating production schedules so as to conform strictly to incoming orders, thereby avoiding the necessity of stocking equipment.

The Big Four Railroad bought a 36-in. x 18-ft. lathe, and the Pennsylvania purchased a 36-44 sidehead boring mill. The Hallidie Machinery Co., Seattle, is the buyer of an 800-lb. single frame steam hammer from the Niles-Bement-Pond Co. The latter also sold a 6-ft. right line radial drill to the Ingersoll-Rand Co., Phillipsburg, N. J., and a similar machine to the A. S. Cameron Steam Pump Works, Phillipsburg. The Textile Machinery Co., Reading, Pa., bought two No. 111 Ransom grinders, and the New York Central purchased a No. 131 Ransom grinder. The McClintic-Marshall Co., Pittsburgh, has taken an Espen Lucas angle chamfering machine. A Pacific Coast company has ordered four lathes, making a total of 14 machines purchased locally by this company the past few weeks. Other sales in this market include two 42-in. x 18-ft. heavy engine lathes for the Baldwin Locomotive Works, Philadelphia; a 36-44 sidehead boring mill for the SKF Ball Bearing Co., Hartford, Conn., and a 36-44 boring mill for C. & G. Cooper Co., Mount Vernon, Ohio.

Demand for used machinery has been holding up well. The Standard Steel Specialty Co., Pittsburgh, bought a 36-in. x 24-ft. Pond planer, and the Foundry Service Corporation, Freeport, L. I., purchased a Pratt & Whitney thread miller.

The Hobart Mfg. Co., Troy, Ohio, has plans for a new three-story factory, 110 x 130-ft., with a floor space of 40,000 sq. ft.

The North Side Tool Co., 17-19 Maryland Avenue, Dayton, Ohio, manufacturer of tools and dies, has purchased a four-story plant at Fifth and Perry Streets. Removal to the latter location will enable the company to increase its production. George Serapin is president.

Contract has been let by the A. Mentink Co., 2648 Colerain Street, Cincinnati, to Steinbricker Brothers, 3112 Woodburn Avenue, for a one-story shop for automobile and wagon repair.

The Insaude Screw Products Co., 2623 Roseland Avenue, Cincinnati, has awarded contract to William Hoffmeister, 3426 Cardiff Street, for a new one-story plant.

The Zion Coal Co., Zion, near Hendersonville, Ky., plans to rebuild the portion of its tippie recently destroyed by fire, with loss estimated at \$25,000 including machinery.

The Strickland Pattern Works, Grove Street, Chattanooga, Tenn., has acquired property at Main and Grove Streets and plans the erection of a new plant for the manufacture of dyeing machinery and parts. The initial works will cost about \$45,000. Barney Strickland is head.

The Federal Compress Co., Falls Building, Memphis, Tenn., is considering the construction of an addition to its cotton compress plant, to cost \$150,000 with equipment.

The American Rolling Mill Co., Middletown, Ohio, is said to be arranging a fund of \$250,000 for additions at Ashland, Ky., where a large project will be carried out in the near future.

Frank Hill Smith, Inc., Union Trust Building, Cincinnati, architect, has completed plans for a three-story automobile service, repair and garage building to cost close to \$60,000 with equipment.

The Tennessee Electric Power Co., Chattanooga, Tenn., has preliminary plans for extensions and improvements in

power plant and system at Centerville, Tenn., recently acquired.

The Kentucky Oxygen-Hydrogen Co., 1260 Logan Street, Louisville, has awarded a general contract to A. Bornstein, Louisville, for a one-story addition. New equipment will be installed.

Ovens, power equipment, conveying and other machinery will be installed in the new three-story plant to be erected by the White Baking Co., Indianapolis, Ind., at Dayton, Ohio, to be 50 x 135 ft., with one-story extension, 135 x 260 ft., to cost \$190,000 with equipment.

The Springfield Ice Co., Willow and May Streets, Springfield, Tenn., is arranging for a new plant, to be 75 x 75 ft.

Milwaukee

MILWAUKEE, May 3.

NET results of machine-tool business in April show little change from March in respect to dealers, but manufacturers did not fare quite so well in the volume of sales actually booked. Sentiment is far from discouraging, however, and if the situation of local metal industries is a criterion, substantial improvement is again setting in. While the requirements of Milwaukee and nearby machine shops are not individually large, the aggregate is of fair volume and several projects have just been made public which will provide considerable business in the next two to three months.

The Fuller-Warren Co., Milwaukee, manufacturer of stoves and ranges, has let the general contract to the Worden-Allen Co., local, for several new factory buildings, the principal item being a new enameling shop. An investment of \$100,000 in buildings and equipment is contemplated. Herbert A. Viets is president and manager; Joshua H. Binney is manager of purchases.

The Modine Mfg. Co., Racine, Wis., manufacturer of radiators for motor vehicles, tractors, etc., will build two one-story brick and steel additions, 112 x 170 ft., and 80 x 140 ft., to its works at Seventeenth and Racine Streets, and has placed the general contract with J. P. Welling, Racine. The buildings when equipped will cost about \$90,000. A. B. Modine is president and general manager.

The Seaman Body Corporation, 1732 Richards Street, Milwaukee, identified with the Nash and Ajax Motors companies, has awarded the general contract to the Dahlman Construction Co., 456 Broadway, for a five-story addition, 100 x 175 ft. W. J. Iwer is general superintendent.

The Miller Service Tool Co., Milwaukee, has been organized by local interests to manufacture a new line of machine shop and general industrial tools and devices. Identity of the principals and definite plans will be given out later, according to William J. Kaumheimer, 120 Wisconsin Street, representing the interests as attorney.

The Hamilton Mfg. Co., Two Rivers, Wis., manufacturer of wood and all-metal furniture and fixtures, has contracted with the Immel Construction Co., New Dana Building, Fond du Lac, Wis., for the erection of a five-story addition, 120 x 130 ft., and a one-story extension, 120 x 150 ft., the first two units of a plant enlargement and improvement program. Lockwood, Greene & Co., 400 North Michigan Avenue, Chicago, are the consulting engineers. George S. Hamilton is president and general manager.

The W. E. Long Co., consulting engineer, 155 North Clark Street, Chicago, acting for the National Baking Co., a new interest, let the general contract to H. Schmitt & Son, Inc., 14 Burleigh Street, Milwaukee, for erecting a \$250,000 plant, 128 x 150 ft., three and four stories at Twenty-second and Clybourn Streets, Milwaukee. It will require oven, pyrometer, conveying and other equipment, motor driven mixing machinery, etc.

The Mattson Foundry Co., Chippewa Falls, Wis., has taken over the foundry department of the Keller Tool and Machine Works, Eau Claire, Wis., and on May 1 transferred its entire equipment to the new location. The company was organized five years ago by A. M. Mattson and Henry Banke and established itself in part of the plant of the Westco-Chippewa Pump Co. The ownership and management remain unchanged.

The Elkhorn, Wis., Board of Education will let contracts about May 10 for furnishing and installing two 100-hp. internally fired Scotch marine boilers with Morison suspended furnaces in the new high school. George P. Peck is secretary of the board.

The G. D. Hummel Auto Co., 2510 North Avenue, Milwaukee, will build a service shop addition, 50 x 60 ft.

The Biflex Products Co., Waukegan, Ill., has declined the offer of the Racine, Wis., Association of Commerce to relocate

its works in the former plant of the Racine Mfg. Co., following a damaging fire in the Waukegan shops. The Biflex company, which manufactures automobile bumpers and other equipment, has just completed an addition which will accommodate its needs until the older portion is rebuilt.

St. Louis

ST. LOUIS, May 3.

PLANS have been completed by the St. Louis Smelting & Refining Works, Flat River, Mo., for a power plant at its mill, 45 x 100 ft., with reinforced-concrete stack, 250 ft. high, estimated to cost \$160,000 with equipment.

The American Iron & Machine Works, Inc., Main and Lindsay Streets, Oklahoma City, Okla., has acquired property on Indiana Avenue and is contemplating the erection of a new plant, reported to cost about \$50,000 with equipment.

The Empire Refining Co., Ponca City, Okla., has work under way on extensions and improvements in its oil refinery. The entire project is estimated to cost \$1,000,000, of which approximately one-half has been utilized. New machinery will be installed. H. R. Straight is vice-president and general manager.

The Board of Education, Lexington, Mo., is planning the installation of manual training equipment in its proposed two-story and basement high school to cost \$125,000, for which bids are being asked on a general contract until May 13. J. H. Felt & Co., 300 West Forty-seventh Street, Kansas City, Mo., are architects.

The Midwest Wall Paper Co., Kansas City, Mo., has awarded a general contract to James E. Taylor, Reliance Building, for a new three-story plant, to cost \$100,000 with equipment. H. Alexander Drake, Reliance Building, is architect.

The St. Joseph Railway, Light, Heat & Power Co., St. Joseph, Mo., is arranging an expansion program to cost about \$900,000, of which amount about one-half will be expended for new construction, including power plant extensions. The work will be carried out during the summer.

The Fort Smith Couch & Bed Co., North Second and I Streets, Fort Smith, Ark., will proceed with the erection of an addition to double, approximately, the present capacity. It will cost about \$75,000. Emil Ballman is president.

The Producers' Co-Operative Co., Tulsa, Okla., R. D. Rees, head, plans the installation of a cold storage and refrigerating plant in its proposed one-story and basement market building, to be 140 x 140 ft., estimated to cost \$135,000. Marshall C. Cross, Nebraska Building, is architect.

The Century Electric Co., 1805 Pine Street, St. Louis, manufacturer of electric motors, fans, etc., is said to be planning the erection of a foundry in connection with its proposed expansion, to cost about \$100,000 with equipment. L. B. Pendleton, DeMenil Building, is architect.

Martin J. Laubis, Bank of Poplar Bluff Building, Poplar Bluff, Mo., architect, has plans for a one-story automobile service, repair and garage building, 105 x 210 ft., to cost about \$50,000 with equipment.

The Producers' Cold Storage Co., Chillicothe, Mo., has tentative plans for an addition to its ice and cold storage plant, to cost close to \$50,000 with equipment.

The Board of Education, Columbia, Mo., plans the installation of manual training equipment in a proposed new high school estimated to cost \$225,000, for which bids will soon be asked. William B. Ittner, Board of Education Building, St. Louis, is architect.

The Arkansas Foundry Co., Little Rock, Ark., is in the market for equipment, new or second hand, for the establishment of a small shop to manufacture an ornamental iron and wire window guard, in addition to its regular line. J. J. Schmelzer is purchasing agent.

Indiana

INDIANAPOLIS, May 3.

THE Interstate Public Service Co., Indianapolis, has tentative plans under advisement for a new generating plant near Arctic Springs, Jeffersonville, Ind., where a 30-acre tract has been acquired through its subsidiary, the Interstate Public Service Realty Co. The new station is reported to cost in excess of \$300,000.

The Marietta Mfg. Co., Sixteenth and Sherman Streets, Indianapolis, manufacturer of tables, counters and similar fixtures, has plans under way for a one-story addition, 65 x 120 ft., to cost \$40,000 with equipment.

The Gates Mfg. Co., 835 North Meridian Avenue, Indianapolis, manufacturer of automobile tops, frames, etc., will proceed with the construction of a two-story addition, 82 x 100 ft., to cost close to \$40,000 with equipment.

The National Cab & Truck Co., Indianapolis, recently organized, has taken over the local building and equipment of the Premier Motors, Inc., under lease, and will develop the plant for the rebuilding of taxicabs, parts production, etc. The new company is said to have secured orders to insure full production for a number of weeks, and later expansion will be arranged. Frederick I. Barrows, formerly president of the Premier organization, is general manager of the National Company; Charles O. Warfel, formerly secretary of the Premier Motors, Inc., is secretary and treasurer of the National organization.

The Gatke Brake Lining Co., Warsaw, Ind., is considering the erection of a one-story machine shop addition to cost \$35,000 with equipment. H. Gatke heads the company.

The Board of Education, Churubusco, Ind., plans the installation of a manual training department in its proposed new high school to cost \$90,000, for which plans are being drawn by Leighton Bowers, Utility Building, Fort Wayne, Ind., architect.

The Hercules Mfg. Co., Evansville, Ind., a subsidiary of the Serv-el Corporation, New York, manufacturer of electric refrigerating equipment, is devoting entire plant capacity to this line of production and will increase facilities to provide for an output of 350 complete refrigerating units per day instead of a present schedule of 240. The company is said to have expended more than \$500,000 for automatic and other machinery since acquisition last fall by the Serv-el organization.

The Gary Heat, Light & Water Co., Gary, Ind., will soon ask bids on a general contract for a three-story equipment storage and distributing building, 125 x 125 ft., with automobile service and garage building for company motor trucks and cars, estimated to cost \$200,000. George H. Maher & Son, 157 East Erie Street, Chicago, are architects.

The Anderson Die & Model Co., Twenty-fourth and Delaware Streets, Anderson, Ind., has been reorganized and the name changed to the Anderson Tool & Die Co. Capital stock of the new company is \$25,000. It will engage in special machine work, making dies, jigs, gages, special tools and fixtures and special machinery. The company is in the market for a used shaper.

The Auburn Mfg. Co., Richmond, Ind., has taken over the assets of the company of the same name and also the assets of the Geyser Specialty Co. The reorganized company will manufacture spark plugs, circulating water pumps for automobiles, automobile heaters and other motor accessories. It is incorporated with 250 shares of stock of no par value. Officers are H. G. Kitchin, president; M. A. Kitchin, vice-president, and C. Hartzell, secretary-treasurer.

Detroit

DETROIT, May 3.

ABOUT 170 acres in Bloomfield Township, near Pontiac, Mich., has been acquired by the General Motors Corporation, Detroit. The company is said to be planning the construction of a new plant at this location to be occupied by its recently acquired subsidiary, the Yellow Coach & Truck Co., Chicago, for the manufacture of taxicabs and other types of automobiles. The project is reported to cost more than \$750,000.

The Michigan Electric Railways Co., Jackson, Mich., has plans under advisement for rebuilding the portion of its shops near the city limits, Albion, Mich., recently destroyed by fire, with loss reported in excess of \$500,000 with equipment. H. D. Sanderson is chief engineer.

The Baker-Perkins Co., Flint, Mich., manufacturer of chemical machinery, etc., is planning the early erection of a one-story addition to cost about \$40,000 with equipment.

The American Enamelled Products Co., 2101 Indiana Avenue, Chicago, is completing arrangements for the early removal of its business to Mount Pleasant, Mich., where additional equipment will be provided for considerable increase in output. It is expected to give employment to more than 100 at the Mount Pleasant works.

The Lufkin Rule Co., Saginaw, Mich., manufacturer of steel rules, tapes, etc., is having plans drawn for a two-story and basement addition to cost about \$70,000, for which bids will soon be asked. Smith, Hinchman & Grylls, Marquette Building, Detroit, are architects.

The Joy Toy Mfg. Co., Denver, Colo., has negotiations under way with the Chamber of Commerce, Mount Pleasant, Mich., relative to the removal of its plant to the latter city. A factory will be secured to allow for increase in output. A. W. Reinecke is general manager.

The A. C. Spark Plug Co., Industrial and Harriett Streets, Flint, Mich., has begun the erection of a one-story addition on the Western Road, to cost approximately \$100,000 with equipment. A general contract has been let to the W. E. Wood Co., Ford Building, Detroit. Albert Champion is president.

The Automatic Ignition Lock Co., Lansing, Mich., recently organized with a capital of \$25,000 by Charles A. Hervey, Lansing, and associates, will operate a local plant for the manufacture of a patented automobile lock. Mr. Hervey will be president of the company.

The Sparks-Withington Co., Jackson, Mich., manufacturer of automobile accessories, radio equipment, etc., is said to be planning for considerable expansion in its radio division.

Manual training equipment will be installed in the proposed two-story and basement high school to be erected at Battle Creek, Mich., estimated to cost \$500,000, for which bids will soon be asked on a general contract. J. D. Chubb, 109 North Dearborn Street, Chicago, is architect.

The Kunkel Valve Grinder & Mfg. Co., Hart, Mich., is said to have abandoned plans for the removal of its plant to Grand Haven, Mich., and will continue operations at the Hart works. Plans are under consideration for expansion.

The Kelso Co., Mt. Clemens, Mich., recently incorporated, has succeeded to the partnership business in existence for a number of years and known as the Kelso Fobafimi Mfg. Co. It has a plant in operation at Philadelphia and has just completed the purchase of a factory and the installation of machinery at Mt. Clemens. It manufactures a spring protection pad used by automobile and furniture manufacturers.

The Ward Electric Refrigeration Corporation, Book Tower Building, Detroit, has recently been organized to manufacture electrical refrigerators and parts. It expects to build a plant and will shortly be in the market for materials and equipment.

Pacific Coast

SAN FRANCISCO, April 28.

ATRACT of 4 acres on the Alameda Boulevard, Huntington Park, Cal., has been acquired by the Los Angeles Ladder Co., 1630 South Central Avenue, Los Angeles, as a site for a new plant. It will consist of a main factory, 120 x 120 ft.; one-story machinery building, 60 x 90 ft.; and one-story warehouse, 60 x 150 ft., estimated to cost \$50,000.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, has arranged for a new bond issue of \$10,000,000, a portion of the proceeds to be used for extensions and improvements in plants and system.

The Pioneer Rubber Mills, Inc., Pittsburg, Cal., has plans for a new power house, to cost \$45,000.

The Baldrige Packing Co., Inc., Los Angeles, contemplates the installation of a cold storage and refrigerating plant in its proposed new two-story packing house at Vernon, Los Angeles, to cost about \$50,000. A one-story power house will also be built. John Allen, 1210 Ninetieth Place, is architect.

T. B. Keim, Jr., Haas Building, Los Angeles, architect, has plans for a four-story automobile service, repair and garage building, 100 x 150 ft., estimated to cost \$100,000.

The Chelan River Irrigation District, Chelan, Wash., Charles R. Sargent, Chelan, representative, is planning the construction of an electrically operated pumping plant in connection with a proposed irrigation project in this section. The entire project will cost about \$60,000.

The Board of Education, Ogden, Utah, plans the installation of manual training equipment in its proposed new high school estimated to cost \$300,000. Bids will soon be asked on a general contract.

The Hauser Packing Co., Los Angeles, will soon begin work on a new two-story cold storage and refrigerating plant, 110 x 130 ft., to cost \$105,000 with equipment. W. W. Ache, 1616 Fourth Avenue, is architect.

The Great Western Power Co., 530 Bush Street, San Francisco, is completing plans for the early construction of a power substation at Ryde, Cal., to cost \$180,000 with equipment.

The Orange County Ice Co., Anaheim, Cal., will soon break ground for the construction of a proposed plant at Fullerton, Cal., with a capacity of about 30 tons per day. It is estimated to cost about \$55,000. John Molt is general manager.

The City Council, Wheatland, Cal., is planning the early purchase of a motor-driven centrifugal pumping unit, with switching and starting equipment. W. H. Niemeyer is city clerk.

Plans are being prepared by the engineering department of the American Can Co. for a two-story concrete and brick plant at Santa Fe Avenue and Forty-ninth Street, Los Angeles. The estimated cost is \$5,000,000.

Plans are being made by the Spaulding Pulp & Paper Co., Newberg, Ore., for a paper plant to be erected on the Willamette River to cost \$1,200,000.

The Western Pacific Railroad Co., Mills Building, San

Francisco, has awarded a \$200,000 contract to Eaton & Smith, 715 Ocean Avenue, for the construction of new track-age in the industrial district south of Market Street.

Plans are being prepared by the Bureau of Yards and Docks, Navy Department, Washington, for a steel frame building, 900 ft. long, to be built west of Dry Dock No. 2 at the Puget Sound Navy Yard, Bremerton, Wash. Plans call for two central bays, 75 ft. wide by 80 ft. high, and equipped with two 100-ton cranes. The estimated cost is \$1,000,000.

Canada

TORONTO, May 3.

WHILE there is a steady flow of single orders for machine tools from buyers throughout the Dominion, demand on the part of the automotive industry is practically at a standstill, due to the uncertainty that still prevails as a result of the recent tariff changes affecting motor cars and parts. Despite the falling off in business, both builders and dealers continue optimistic and the general increase in demand from other sources has to some extent offset the absence of orders from the automobile industry. Considerable new construction work is under way and in prospect which will have a stimulating effect on the machinery business early in the summer. Sales in April compare favorably with those of former months this year. During the past six weeks general improvement is reported in used tool sales.

It is reported that the United States Gypsum Co., is contemplating the erection of a plant at Cayuga, Ont.

The Provincial Paper Mills, Current River, Port Arthur, Ont., has let the general contract to W. J. Thimble for an addition to the finishing room to cost \$24,000 and to the heater room to cost \$23,500.

The London & Port Stanley Railway, Port Stanley, Ont., proposes to install a coal handling plant.

The Porter Mfg. Co., Galt, Ont., manufacturer of tubular brass goods, etc., will build an addition, 25 x 58 ft., one story.

Cowan & Co., Galt, Ont., manufacturers of wood-working machinery, etc., will reopen their molding shop and will make their own castings, which have been purchased for some time.

The Dominion Safety Lock Nut Co., which has been operating at Lachine, Que., will build a plant at Granby, Que., and the Lachine plant will be dismantled. H. R. Snyder is president of the company.

The St. Thomas Metal Sign Co., St. Thomas, Ont., and the Mathews Co., Detroit, have been merged. It is the intention to build an addition to the St. Thomas plant to handle the increased business.

The Edison Phonograph Co., East Orange, N. J., proposes to establish an assembling and distributing plant at St. Thomas, Ont., in a building purchased about six years ago. It is understood that present plans call for the closing of the Toronto distributing department and eventually the closing of those at Montreal and Winnipeg.

The Kroehler Mfg. Co., Stratford, Ont., will build a 4-story addition to its factory, 63 x 160 ft. The cost of building and equipment will be approximately \$200,000.

By reason of the change in the construction program of the Thunder Bay Paper Co., Port Arthur, Ont., a much larger plant than the one formerly proposed will be erected and negotiations are under way for the purchase of 100 acres. New plans call for the construction of a 400-ton newsprint mill, to be in operation before Jan. 1, 1931, and to employ 750 men.

A new substation to cost about \$175,000 with equipment will be erected by the Windsor Hydro System, at Windsor, Ont., during the summer.

The Monarch Batter Co., Kingston, Ont., contemplates erecting a new factory, Isaac Cohen is president.

It is reported that the International Paper Co., plans to take over the pulp mill at Haileybury, Ont., owned by the Ontario Light & Power Co. It is understood that the purchaser also proposes to build an addition to the mills.

Western Canada

The Eckhardt Mfg. Co., St. Paul, Minn., is said to have completed arrangements with city officials of Winnipeg, for the establishment of a plant to manufacture threshing machines, loading machines and other farm implements. Work will start within the next few weeks.

The Union Oil Co., Victoria, B. C., proposes to start work soon on the erection of a plant. Whether or not tenders

will be called for the entire work is not yet known. It is probable that oil and gas storage tanks, which will form a large part of the construction scheme, will be erected under the personal supervision of the company's engineers, and that tenders will be called for the erection of the power house, wharf, offices, etc.

The Manitoba Rolling Mills, Ltd., Selkirk, Man., will start work immediately on the construction of a machine shop.

Bids will be received by S. E. O'Brien, secretary Dominion Department of Public Works, Ottawa, for the construction of a traveling crane at Victoria, B. C., for the Esquimalt drydock, estimated to cost \$100,000. Plans and specifications are with the Department at Ottawa.

The town of Roblin, Man., is having plans prepared for the erection of an electric light and power plant.

The City Council, Edmonton, Alta., has approved the purchase of new equipment for a power plant estimated to cost \$275,000. C. E. K. Cox is city clerk.

Foreign

R.STRASCHNOW, 104 Fifth Avenue, New York, is in the market for complete equipment for a 10-story apartment building to be built in Argentina. Among the items to be bought are electrical appliances, sanitary bath equipment, vacuum cleaner system, hot and cold water system, refrigerating system, laundry installation, garbage incinerator, steam heating system, built-in safes, built-in beds, builders' hardware, etc.

Armstrong, Whitworth & Co., Singapore, British Malaya, have preliminary plans under way for a hydroelectric power project on the Parak River, with initial capacity of 18,000 kw. An auxiliary steam-operated electric generating plant with rating of 5000 kw. will also be built. A transmission system will be constructed for service in the tin mining districts in this vicinity. The project is estimated to cost close to \$10,000,000. The American Consulate, Hugh S. Miller, consul, Singapore, has information regarding the enterprise.

Daniel Nieto, Rivadavia 1255, Buenos Aires, Argentina, manufacturer of electrical apparatus, is desirous of getting in contact with American manufacturers of machinery for producing brushes for dynamos and motors, with view to purchase.

The Broken Hill Proprietary Co. and Rylands Brothers, Newcastle, New South Wales, Australia, affiliated, have plans under way for new works for the manufacture of wire netting and kindred wire goods.

The Ford Motor Co., Detroit, is said to be contemplating plans for the establishment of a new plant at Dagenham, Essex, England, where more than 300 acres was acquired several months ago. The present plant is at Manchester, England, and it is purposed to remove this works to the new location with large increase in output.

Jorge Martin, Alaejos, Valladolid, Spain, operating a machine shop, is desirous of getting in touch with American manufacturers of welding equipment.

The Government Railways, Wellington, New Zealand, are asking bids until June 16 for electric motors and auxiliary equipment for the repair shops at Hillside.

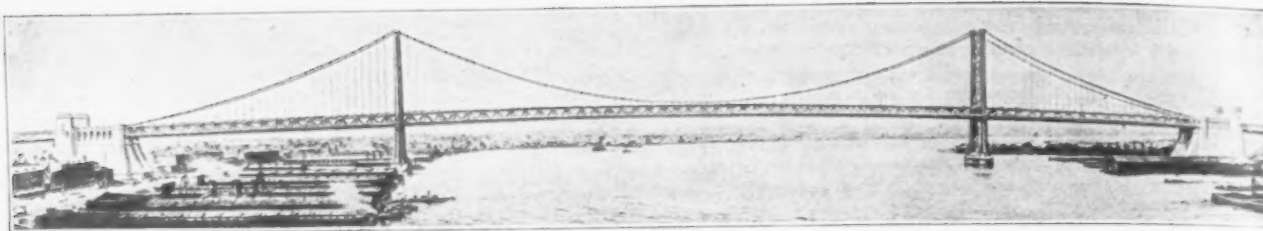
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THE Philadelphia-Camden Bridge across the Delaware is 9500 ft. in length, 135 ft. wide and 385 ft. high, and with a suspension span of 1750 ft. On July 4, during the sesquicentennial celebration of the signing of the Declaration of Independence at Philadelphia, it will be opened to vehicular, trolley, rapid transit and pedestrian traffic. The bridge is suspended by two finely woven steel wire cables, 30 in. in

diameter (18,666 strands of No. 6 wire each). It will accommodate 6000 automobiles an hour, in company with four lines of rail traffic and two 10-ft. streams of pedestrians.

All of the wire used in the weaving of these enormous cables, if stretched out in a single piece, would total 25,100 miles. This wire was wound into large reels at the factory of the Page Steel & Wire

Co. and the weaving into cables done on the job. The suspender ropes supplied by the American Cable Co. and extending from the two main cables to the floor of the bridge number 596. The floor which they support is made of steel and reinforced concrete, there being carried on it two 10-ft. sidewalks, a 57-ft. motor drive, two trolley tracks and two rapid transit tracks.

THE LAST WORD

TO go broke through lack of business is bad enough, but to fail because of too much business is infinitely more painful. A few months ago a foundry situated in Pennsylvania did that very thing. It experimented with taking orders at less than cost and found it the shortest road to ruin.

Another foundry in the same State ran full capacity during the last quarter of 1925 and made no money. "Are we in business for love?" pertinently inquired the owners, and forthwith resolved to forswear charity. Result: In the first quarter of this year it obtained only enough work to run fifty per cent of capacity. But, it earned a substantial dividend. This would make a pretty fairy tale, but it happens to be true.

It seems to me that the coming of the steel-frame dwelling will not be an unmixed blessing. What is going to compensate for the loss of the thrill of seeing your air-castle materialize bit by bit as the carpenters measure, saw and nail into place each member of the framework? I understand it will be possible to put up these steel-frames for dwellings between sun up and sun down.

And who will do the work, carpenters or iron-workers? After wrestling with this problem for two years, Cincinnati builders recently made the temporary decision that the employer "shall proceed with such workmen as in his judgment he may see fit to employ."

The roofs of many labor temples will be raised in the next few years by far from polite discussions of this knotty question.

Will the kilowatt-hour displace steel as a business barometer? The central station people contend electrical energy is a much more dependable business gage than any commodity that you can store on the retail store shelf or pile up in the manufacturer's warehouse.

With three-fourths of all electric current used for

manufacturing purposes supplied by the central stations, they regard the kilowatt-hour as an excellent index of industrial activity. Sounds reasonable.

But their contention that people use more electric light when prosperous than when the wolf is about to prowl along the front walk is debatable. Our observation is that the average citizen is more inclined to invest his surplus in gasoline, movies, golf clubs and night clubs, all of which contribute toward keeping the home lights out.

Perhaps you can answer this question: If American manufacturers get enough out of billboard advertising to invest several millions of dollars in it, why do so many of them totally disregard the advertising value of their own factory walls? Or, the factory roof?

The next time you board the Limited notice how many firms fail to use to advantage the valuable space they own. Some of them have erected no signs at all, and most of the others cash in inadequately.

By the way, what do the signs on your plant tell the peripatetic public about the particular merits of your product?

From the golf links at Pinehurst, N. C., where the members of the American Bankers' Association are discussing business (may be), while smoothing the footprints in the sandtraps, comes this announcement:

"With money and credit conditions favorable, there will be a satisfactory readjustment of business without a depression."

Readjustment literally can mean up or down. But no one will need two guesses to learn the bankers' definition of the word. As usual, each of us will believe and hope that it applies to other lines than our own.

A. H. D.

Special Notice

Many readers have asked us what we have done with the price quotations which formerly appeared on this page under the heading, "Current Metal Prices."

To improve the service these quotations are now in the regular market section, which goes

to press somewhat later than does this page.

The ferrous quotations are in the New York section of the iron and steel market reports and the non-ferrous quotations are on the Non-Ferrous Metal Markets page, which is numbered 1314 this week.